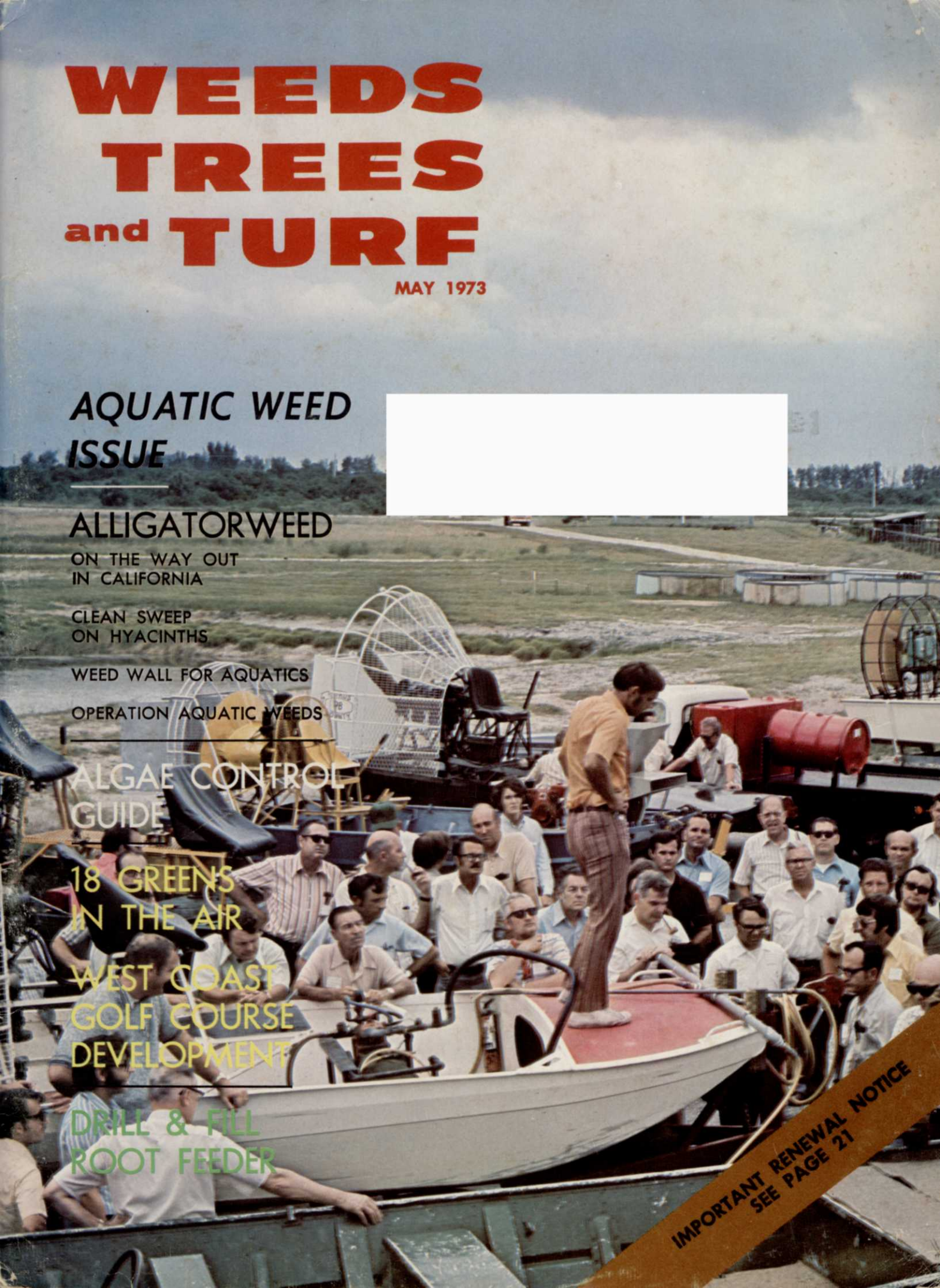
WEEDS TREES and TURF

MAY 1973



AQUATIC WEED ISSUE

ALLIGATORWEED
ON THE WAY OUT IN CALIFORNIA

CLEAN SWEEP ON HYACINTHS

WEED WALL FOR AQUATICS

OPERATION AQUATIC WEEDS

ALGAE CONTROL GUIDE

18 GREENS IN THE AIR

WEST COAST GOLF COURSE DEVELOPMENT

DRILL & FILL ROOT FEEDER

IMPORTANT RENEWAL NOTICE SEE PAGE 21

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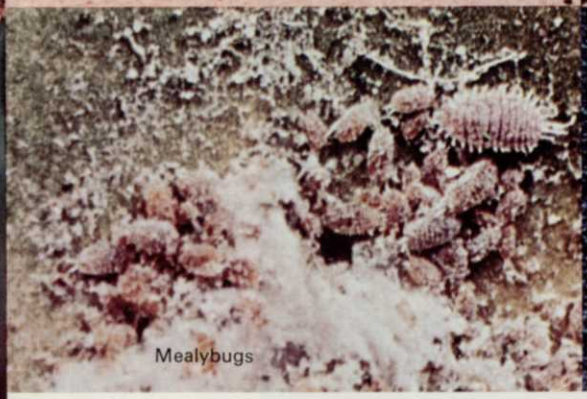

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industrial lawns—or wherever grass and ornamentals are grown. It's especially effective to control the hairy chinch bug and sod webworm. DURSBAN insecticide is also preferred by PCO's for controlling household and structural pests—especially resistant roaches that laugh at other sprays. Please remember to read and observe all precautions on the product label. Bugs, get ready for 1973!

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WEEDS TREES and TURF

Volume 12, No. 5 May, 1973

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"Serving The Green Industry"

Alligatorweed Eradication **14**
A two part article on how a positive control program is saving California waterways from this destructive weed. Part I is about the identification of the problem. Authors are Wesley G. Hill and Robert G. Donley, deputy agricultural commissioner and agricultural inspector, respectively, weed and vertebrate pests, Los Angeles county. Part II is on the methods of control used. Author is William R. Clark, deputy agricultural commissioner, weed and vetebrate pests, Tulane County, Calif.

Identification Is The First Step **18**
Aquatic weed control is a science that requires an accurate analysis of the problem before a solution is found. Dr. Robert M. Stern of Great Lakes Biochemical Co., Inc. discusses the steps needed in solving an aquatic weed and algae problem.

A Growing Business In Aquatic Weed Control **20**
Control Services, Inc. of Iowa have made a growing business in the area of aquatic weed control. Here's a chance to expand the services of your business, too.

18 Greens In The Air **24**
Unique describes the construction of this golf course. If you're plagued with water problems and flooding, consider the features of elevating greens.

Louisiana's Fight For Control **26**
Aquatic weed control is big business in Louisiana. William Thompson tells how a program is developed and implemented to keep weed destruction to a minimum.

West Coast Golf Course Development **28**
Here's the latest scoop on what's happening in golf on the west coast. Buddie A. Johnson, facility development consultant for the National Golf Foundation discusses the trends, construction and other aspects of this growing business.

Weed Wall For Aquatics **30**

Florida Hyacinth Problem — Once Over Lightly **34**

Treat Specific Problems For Better Algae Control **51**
A quick course in algae and other aquatic weeds and how to control them by Dr. William G. Patterson of the 3M Company.

Clever Deep Root Feeder Drills and Fills **72**

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The Cover

You can be sure to see a crowd whenever the subject turns to aquatic weed control. Here members of the Hyacinth Control Society gather around airboats, spraying equipment and other aquatic machinery on display at the USDA Research Laboratory at Fort Lauderdale, Florida.

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Editorial Minutemen Of The Environment

The American citizen has been given more voice in the way you conduct business than ever before. The silent majority has been replaced by a more active citizen involvement, particularly in the area of environmental management. Recently passed environmental legislation delegates an increasing burden of law enforcement to every citizen right down to your mother-in-law.

Clever congressmen thinking of environmentally concerned constituents have passed at least three laws which give the voter more leash in bringing to justice alleged violators. These laws, the Clean Air Act, the Federal Water Pollution Control Act, and the Noise Control Act, make virtually every individual, customer and client a policeman in insuring your conformance to the law's standards.

Furthermore, this action is being backed by a strong public relations push from the Environmental Protection Agency, administrator of the laws. In a recently published booklet, "Don't Leave It All To The Experts," EPA tells citizens how to become more effective officers of the environment. It details such things as how to become informed, to sue or not to sue, knowledge of the law, picking targets, lobbying, finding funds, public hearings, and a section on mass communications. The end result is designed to create more active citizen participation.

This citizens action cookbook should be required reading by every Green Industry reader. (Order from Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. for 55 cents.) Indeed, many of its principles have direct application to Green Industry organizations. We have previously cited many of these points. Now the facts must speak for themselves. Any organization or business whose interests are not in line with these laws is standing on the centerline of a highway during rush hour. The odds for a collision are almost a certainty.

Additionally, you as a businessman are no longer immune to persons who are not your clients—if you ever were. In the area of noise control, a resident in the neighborhood where you have a job can bring grievance against you—and make it stick—if the noise you create is in violation of the standards.

The laws have essentially made everyone responsible for the mistakes of everyone else. The partial shift in enforcement responsibility from the government to the citizen has made each of us our neighbor's keeper in every sense of the word. Thus, we would urge businesses and organizations to adopt standardized operating procedures that are well within the limits of the law.

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Government News / Business

The fertilizer situation especially phosphorus appears to be tight. While production is running at full capacity, several factors have made supplies to growers shorter than usual this year. According to Dr. William C. White, vice president member services, The Fertilizer Institute, fertilizer exports have been running heavy. In addition, reduced rail capacity to transport bulk fertilizer from the producer to the distributor has been limited. White says that producers have not increased production for the past several years due to overproduction. Current plans call for expansion, but results will not be seen much before 1975. Supplies of fertilizer are not short, notes White. There is just less being transported through the pipeline. Some manufacturers have attempted to use barges on major waterways. However, this has been less than successful with heavy flood situations in the central U. S. Order early, says White. It will help in getting fertilizer when you need it.

ANSI Z-133.1 report on the safety requirement for tree pruning, trimming, repairing, or removal is now available. This standard is the first to be endorsed by the American National Standards Institute. It was prepared in cooperation with the International Shade Tree Conference and the National Arborist Association along with other interested manufacturers and organizations. If your business is involved in tree care, it would be advisable to secure a copy of this standard. Write to American National Standards Institute, Inc., 1430 Broadway, New York, N. Y.

Do you want to know the latest status of any bill before Congress? Then call (202) 225-1772. That's the hot-line number for an immediate computer read out, according to the USDA Office of Information. When calling, state the title or number of the bill.

The Environmental Protection Agency has proposed new rules governing hearing procedures for the regulation of pesticide products under FEPCA. The purpose of the rules is to insure that all parties adversely affected by EPA decisions will have a clearly defined avenue for seeking redress. The EPA Administrator may call a hearing to consider all information concerning a questionable pesticide, without the necessity of a cancellation, suspension or change of classification action. Additionally, in the case of a product suspension due to imminent hazard to the public, the new rules would accelerate the hearing process and thereby provide greater protection for the public. Other sections in the proposed procedures include: subpoena power given to EPA's administrative law judge in hearings; incorporation of the scientific advisory committee into the hearing procedure; and the right of the administrative law judge to make "initial decisions" which may become final where there is no appeal within a stated period of time.

The Environmental Protection Agency has granted registration to International Minerals & Chemical Corporation for the aerial application of Thuricide HPC in the control of gypsy moth. The product is a biological compound that was used widely by ground applicators last year to control this pest in forests, residential and public properties.

The one industrial herbicide that kills *all* of them

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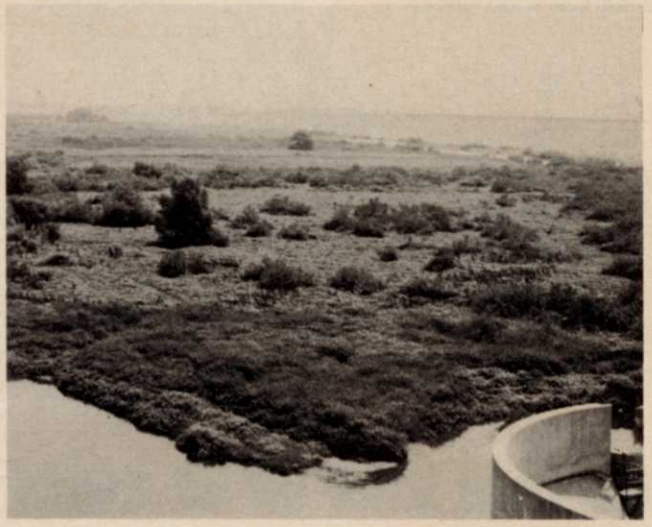
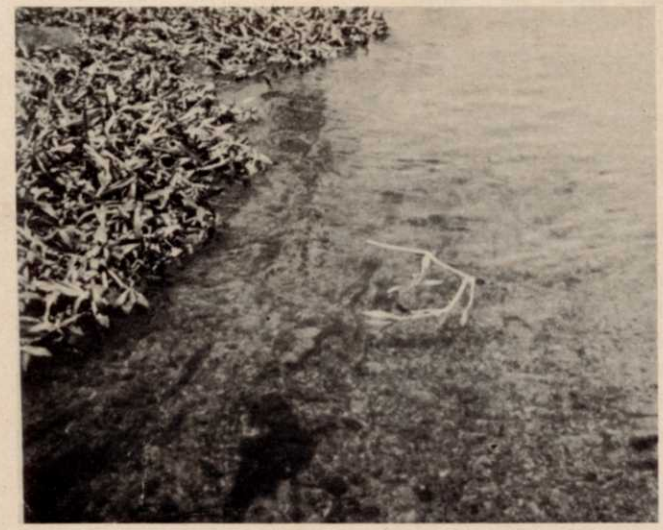
Alligatorweed not only choked the waterways but encroached on the turfgrass areas in the city of Whittier. Here the weed is thriving on dry ground along a private residential parkway.



Looking from the top of the Whittier Dam into the Rio Hondo basin reveals a sea of alligatorweed. This weed displaces a great amount of storage water and fragments are often carried away by the public.



There goes a "start of another plant." This floater was found on the Rio Hondo River. Alligatorweed propagates through the spread of plant nodes. Seed is seldom if ever found in the United States.

Alligatorweed Control Program Saves

Problem Identification

By WESLEY G. HILL & ROBERT G. DONLEY
Deputy Agricultural Commissioner and Agricultural Inspector, respectively
Weed and Vertebrate Pests
Los Angeles County, Calif.

ALLIGATORWEED, a real southerner from South America, has been choking North American waterways for nearly 85 years. Literally millions of dollars have been spent on research and control methods to eradicate this weed from waterways throughout the southern states.

More recently, this pest which produces no viable seeds in the United States, has been reported in other sections of the country, and more particularly in southern California. As early as 1946, a University of Southern California botanist recorded the presence of the weed along the Rio Hondo River north of the Whittier Narrows Dam.

Ten years later plants were observed along a five-mile segment of the river. Subsequent investigation showed spot infestations in the concrete bottom of the Los Angeles River. Heavy mats of the weed extended out over the edge of the flowing Rio Hondo River where the bottom was unimproved dirt. In the basin behind the Whittier Narrows Dam, alligator weed had increased to solidly cover an area of forty acres. This represented the largest single find of plants.

In the San Gabriel River, alligatorweed was found in numerous places, especially along ten miles of unlined river bed. Additionally, a total of 19 satellite infestations have been located on private and public property in Los Angeles county from 1966 to the present. In almost every case, the origin of these finds can be traced to alligatorweed infested soils removed from the site of the parent infestation.

In Tulare county, the situation was somewhat different. Alligatorweed was first found in December 1965 near Porterville and Visalia. Concern was expressed about the rapidity of infestation because two large flood control and recreation lakes had just been completed only a few miles from both findings. Game and pan fish could be endangered by reduction in oxygen supplies. Many of the desired fish would then be killed and predatory fish populations would begin to rise.

Also, researchers were worried about decaying mats of Alligatorweed which produce hydrogen sulfide, a gas toxic to fish and other organisms. Recreations in other ways could be hampered.

Of prime interest though was agriculture's dependency on water throughout the San Joaquin Valley. Alligatorweed infestations were reported to reduce delivery

(continued on page 52)

Eradication

California Waterways

Analysis And Control

By WILLIAM R. CLARK
Deputy Agricultural Commissioner
Weed and Vertebrate Pests
Tulare County, Calif.

THE CONTROL of alligatorweed has proven to be quite a complex operation. Even with several years of successful control and eradication in Tulare County and more recently in Los Angeles county, we cannot hope to let down our guard against this formidable aquatic weed.

The actual methods of control are becoming more sophisticated as our knowledge about the effectiveness of various environmental protection chemicals increases.

When the urgency of needed action was determined in 1966, the California department of agriculture and the Tulare county agricultural commissioner's office launched a concentrated offensive to eradicate the weed. With an Eradication Agreement formulated, our job was to conduct field trials and find a solution to the problem. Public and private awareness of the problem was in our favor. In short order, everyone concerned with alligatorweed was soon helping in test plots, contributing time and talent, making access roads, shifting water schedules and anything else needed to further enhance testing. All told, local, district, state, Federal, private and public individuals, organizations and corporations joined in the program.

To date over 350 field test plots with various chemicals and combinations thereof have been tested. Almost every chemical and method of control have been tried.

Foremost in our minds was the need for materials that would be safe in the water and safe to apply. It should be pointed out that tests conducted in Tulare and Los Angeles counties were made taking into account all environmental relationships. The fish and game commission as well as the bureau of chemistry for the State of California were deeply involved in securing the label deviation and subsequent registration on the product use. Additionally, our present method of control has been approved by the state. This does not mean that the product use may be adopted by other states without first checking with that state's officials.

Our initial thinking was that environmental protection chemicals would play a major role in the eradication program. Those with longer residual activity should be likely candidates. However, this was not necessarily the case.

The bare ground materials were all investigated with sodium-chlorate at 1200 pounds per acre showing the best results. Karmex diuron at over 100 pounds per acre

(continued on page 53)

This is what many of the ditches in Tulare County looked like before treatment. Note bottom is completely covered with an alligatorweed mat. Water movement is all but stopped.

After treatment with Vapam and oil the same ditch now is highly visible. No alligatorweeds are actively growing. An eradication program can be an effective tool in keeping unwanted vegetation under control.

This is alligatorweed, one of the toughest aquatic weeds to control in existence. Note hollow stem, small flower, opposite leaves, nodes and root. This weed easily finds a home almost anywhere.

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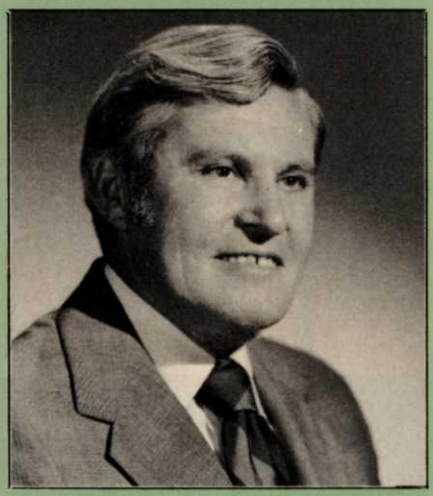

Aquatic Weed Control "Identification Is The First Step"

By DR. ROBERT M. STERN
President and Director of Research
Great Lakes Biochemical Co., Inc.

Editor's Note: This article was adapted from material used by the author in determining treatment for algae and aquatic weed problems. One of the biggest problems in aquatic weed control is problem identification. Managers of bodies of water must be able to identify weed and algae species before a satisfactory treatment can be recommended. Dr. Stern has devoted much time in helping others help themselves. This article is designed around this goal.

AQUATIC weeds and algae in ponds, lakes and lagoons and other bodies of water are a big problem. There is no single "magic" formula, chemical, or method that will control all types of aquatic vegetation. Each problem waterway should be surveyed and from the information obtained, a treatment program formulated.

It is possible and economically feasible to chemically control algae and weeds in golf course irrigation areas, lagoons, lakes, and other waterways without adversely affecting humans, killing fish, animals or rendering the treated water unsuitable for irrigation purposes.

The first step in solving an aquatic nuisance problem is to identify properly the algae and weeds present. The accompanying chart on page 42 has been developed to more clearly understand what is necessary in identifying algae and establishing control procedures. A similar chart can be easily produced for other aquatic vegetation.

Algae are small primitive plants. They do not have true leaves or flowers, but reproduce by means of minute spores or by continued vegetative growth. They can be found floating or attached to submerged surfaces in most lakes, ponds, and streams. Depending upon the nutritive value of the water, algae reproduce very rapidly, especially in hot weather.

Three types of algae are generally found in most lakes, ponds and streams. These are filamentous algae, unattached or planktonic algae, and branching algae.

1. **Filamentous Algae** are commonly referred to as pond scum and consist of growths of long stringy, hairlike strands. Most of the green and brown scums are slimy or cottony in appearance. Some of the common types are:

Cladophora — usually bright to light green in color and appear as cotton-like wads which often rise from the bottom of the pond.

Pithophora—dark green in color. They have a coarse texture and often feel like tough horsehair in the hand.

Spirogyra—also called "frog spittle." It usually appears as slimy bright-green which grow in strands along pond bottoms. As it matures, the strands loosen and rise to the surface.

Hydrodictyon—a filamentous type which is commonly referred to as the "water net" type. Found in deeper water and often float to the surface.

2. **Unattached or Planktonic Algae** cause green or reddish-brown water color and are more or less "free-floating." In the decomposition stage, these organisms give off a foul odor in water. They are normally found at or near the surface of the water where there is sufficient light intensity to permit them to grow luxuriously. Strains called **Anacystis, Anabeana** and **Ophonizomenon** usually produce green water while **Oscillatoria** species produce reddish-brown water.

3. **Branching Algae** are the most advanced forms of algae. They grow from the lake bottom with stems and branches and have a gritty feel. **Chara** and **Nitella** are the principle types of branched algae. Chara has a musky odor and is usually found growing in hard water, in shallow water and on a gravelly bottom. Chara and Nitella are often mistaken for underwater weeds such as coontail or milfoil. These algae are sometimes difficult to control, even when the proper management practices have been used.

AQUATIC WEED CLASSIFICATIONS

Most aquatic plants can be classified into five categories, floating plants, emerged plants, submersed plants, ditchbank or marginal plants and ditchbank woody plants.

1. Floating Plants include those that are not attached. They float freely on the surface of the water. Water hyacinths are one example of this type weed which has plagued southern waterways for many years. In other areas duckweed and watermeal form a green blanket on the water surface. Duckweed has tiny leaves called fronds with rootlets that hang down in the water. Watermeal appears as tiny green grains or granules floating on the surface of the water. Both are commonly found growing together. Duckweed is difficult to control be-

(continued on page 41)

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Larry Maher (l) and Herbert Hoover check out the equipment in their boat prior to a job. (Below) Hoover makes sure hoses are not plugged. Hoses deposit chemicals into the water and not over the surface.

A Growing Business In Aquatic Weed Control

NUISANCE WEEDS and algae, combined with public demand for clean, clear recreational waters, are helping a small industrial weed control firm expand its business rapidly.

Control Services, Inc., a young Iowa-based company, is growing by filling the need for aquatic weed control in parts of Missouri, Minnesota and Iowa. Headquartered at Marion, Iowa, the firm already does 30 percent of its business in the aquatic line and its owners expect that segment to increase dramatically over the next few years.

Company founder Herbert O. Hoover expects that aquatic weed control could become an equal share of his growing business as the public demand for clean water grows. Ponds, lakes, reservoirs, waterways and other recreational waters are seeing increased usage for boating, swimming and fishing.

"As more people use these waters," states Hoover, "there is greater demand for improved water quality and removal of nuisance weeds and algae." We've primarily sold our service to county conservation boards in Iowa, private lake developments and farm pond owners."

His firm is assisting in improving water value and recreational usage through safe and effective control of aquatic weeds and algae by qualified personnel. He and his three associates are licensed and trained to use the specialized equipment to get the job done.

"Two of us are former chemical salesmen, so we have the practical knowledge of products and labeling to enable us to solve most aquatic weed problems," explains Hoover. "We do a lot of algae control, plus we handle such problems as coontail, Eurasian milfoil and we've seen some naiad, which is tough to control."

A flat boat powered by a motor that propels the craft with a jet stream of water rather than a prop-driven motor helps them glide over the infested areas. Through another pump and either a 40-foot spray boom or a hand-held unit, they apply Cutrine or Hydrothol.

Both pumps suck water from the surrounding lake or pond, one for propulsion and one for spraying. The latter can push 300 gallons a minute, which, mixed with the chemicals, is then applied to the perimeter of the water area to be treated.

"Foot-long plastic hoses fastened over the spray nozzles insure that the application is made into the water and not over the surface," explains Hoover, "so there is no drift problem. We haven't backed away from anything yet, and we guarantee our treatments."

This one year guarantee also goes with all industrial weed control (IWC) applications. Most of that work involves weed control along fence lines, in storage areas and along rail spurs.

"Our industrial customers want results and service," Hoover says. "We use Princep and Pramitol to achieve bare ground weed control for a season. We check the results of applications and live up to our guarantee because a happy customer is what counts."

For IWC, Control Services aimed

(continued on page 45)

Keep It Up

I just completed reading the article "How Much Must Be Spent For Turfgrass Irrigation" by Dr. William W. Wood (Feb. WTT, p. 14) and was so impressed with the approach that I felt committed to write and acknowledge same. There is no question that this type of approach has long been over-due in the field of parks and recreation. As a result, you can well understand that I was impressed with the information contained in the article.

I would only encourage you and your staff to continue to seek out individuals who are willing to provide direction in obtaining data that provides a realistic approach in the establishment for the expenditure of dollars. The article points out how negligent we have been over the years in not collecting data that provides a means to honestly substantiate dollar costs. It further emphasizes our responsibility to work and solicit information from the user as to what they in turn are willing to pay.

I look forward to reading future articles containing this same approach and concept. **John P. Perkovich, director of parks and recreation, City of South St. Paul, Minn.**

Answer To Tules

As an agronomy student at California State Polytechnic University, Pomona, I look forward to my issue of WEEDS TREES AND TURF each month. I find the articles to me both timely and informative.

In answer to a letter in the November issue regarding what tules are and how to get rid of them, I have found that they are an aquatic weed, generally ditchbank or pondside in growth characteristic. To control, use a combination of dalapon with 2,4-D at a rate of 10 pounds of 85 percent dalapon plus two pounds 2,4-D ester per acre. This control should be followed as soon as all annual weeds have germinated in the spring.

The above information came from the Oregon Weed Control Handbook. **Gary Kaplan, Arleta, California.**

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■ **Windsor/Newport**—Combines Windsor Kentucky Bluegrass, a proven variety, and Newport, a variety that does quite well in moderately warm and dry climates.

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The McFarland Park Golf Course lies on a floodplain separating the business and residential section of Florence, Ala.

18 Greens In The Air

THERE may be another golf course in the nation that can boast of being downtown. That would be enough distinction for any course. But a new course in north Alabama goes one better. It's not only less than 7 blocks from the heart of a city of 36,000, but it was designed to survive more than 6 feet of fast moving flood water.

These are the reasons a lot of people are talking about the McFarland Park Golf Course in Florence, Alabama. Completed last summer, the 18-hole municipal course is part of a park complex bordering the Tennessee River. Besides the course, there is a driving range, baseball playing fields, a boat harbor, swimming areas, picnicking, and a large camping area.

The entire park is on a flat wooded floodplain designated by the Tennessee Valley Authority as an overflow area which is part of TVA's flood control system. From the beginning, park planners knew that the course would have to be "waterproofed."

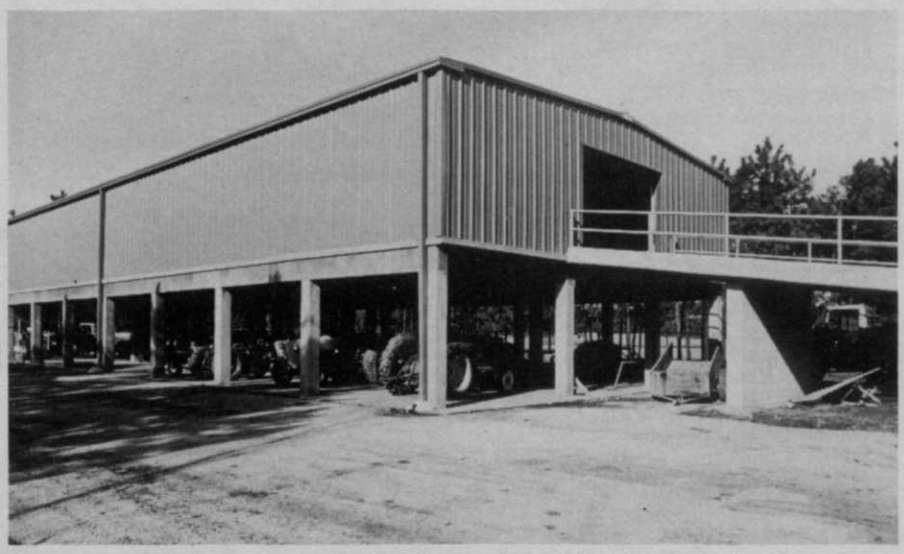
All 18 greens with a total area of about 160,000 square feet are elevated to an average of about 7 feet above the surrounding area. That's high enough, say the engineers, to keep them out of the water under almost any conceivable high water condition along the Tennessee.

But even in dry weather, golfers aren't too far from water. The course has 10 lakes averaging about an acre in size; the largest covers 4 acres. Water comes into play on 13 of the 18 holes.

If that weren't enough of a challenge, the course also has 4 mud flats. They're mud for about 3 winter months when the Tennessee River is normally at its lowest. The rest of the year, they're covered with shallow water.

Water levels in the lakes are controlled by valves equipped with trickle tubes to allow water to flow

(continued on page 32)



The maintenance and equipment building is elevated and equipped with a ramp. During high water, tools are moved from below to the upper part of the building.

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Corps crews spraying water hyacinths in Lake Natchez, La.

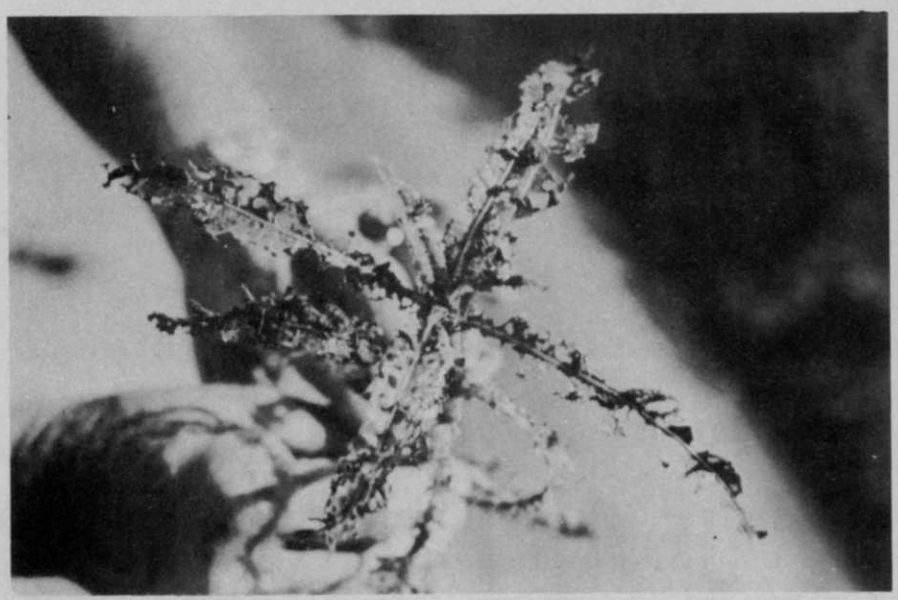
LOUISIANA'S FIGHT FOR CONTROL

Operation Aquatic Weeds

By WILLIAM E. THOMPSON
Chief, Aquatic Growth Control Section
U.S. Army Engineer District
New Orleans, La.

THE GROWTH and spread of aquatic vegetation has been a continuing problem in Louisiana since the late 1880's. There are approximately 8 million acres of lakes, reservoirs fresh water streams and marshes in the state which are subject to infestation by aquatic plants. More than 230 genera of vascular aquatic plants and 25 algae species have been collected in the state.

Over the years, numerous physical, chemical and biological controls have been used to combat adverse effects from aquatic vegetation on navigation, drainage and water supply, recreation and public health. These include harvesting, drawdowns, herbicide treatments, use of nutria, alligatorweed flea beetles and, recently, water hyacinth weevils.



Feeding damage by Alligatorweed Flea Beetle.

There has been a wide variance in results obtained from the different methods. Harvesting of water hyacinths and alligatorweed has been partially successful but progress is very slow and disposal areas along stream banks often become unavailable. Harvesting or cutting submersed vegetation in most water areas is not practical because of numerous snags and large amounts of debris that result from a lack of clearing prior to formation of lakes and reservoirs.

Drawdowns have been employed in many of the lakes for fisheries management and to control the growth of submersed vegetation. Some have proven successful, but in many cases it has not been possible to control the water level to the degree necessary to achieve effective results.

Biological controls have been tried without any marked success until recently. Within the last two years, the spread of the alligatorweed flea beetle *Agasicles hygrophila,* which was introduced into the United States as a result of research funded by the Aquatic Plant Control Program of the Corps of Engineers, has begun to reduce the total alligatorweed infestation in the state.

Clearance was obained in August 1972 for release of the water hyacinth weevil, *Neochetina eichhorniae* and they will be introduced and distributed throughout the state as soon as sufficient populations are available.

At present, in Louisiana, the most effective and economical method of combating problems associated with undesirable aquatic plants is with environmental protection chemicals. Applications are generally accomplished by two man crews who either work in waterways within commuting distance of their home stations, or, in isolated areas, from a quarterboat with complete living facilities. Each crew is equipped with an outboard motorboat and motor, spray pump driven by an aircooled gasoline engine and other necessary equipment.

Until recently, 10 gallon per minute piston type pumps were used, but within the last year several crews have been furnished 20 gallon per minute pumps. This is permitting these crews to treat areas more quickly and has increased the distance that the spray pattern can reach.

In order to permit our crews to spray continuously and eliminate

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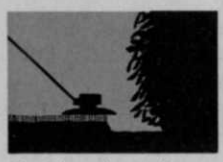
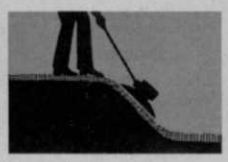
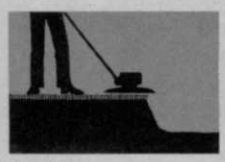
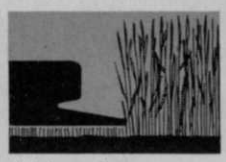


Overhanging edges, steep slopes, traps, and bunkers







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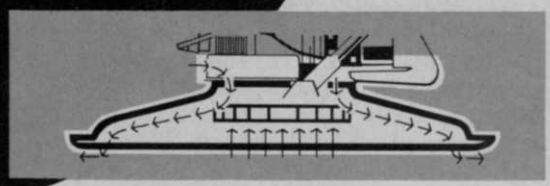

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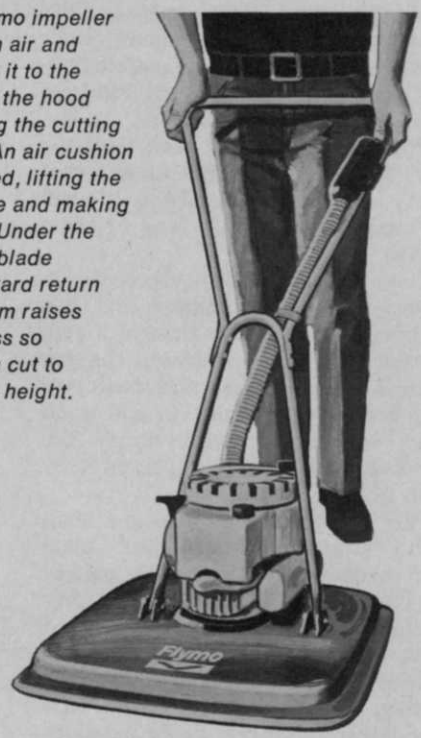
The Flymo impeller sucks in air and presses it to the edge of the hood covering the cutting blade. An air cushion is formed, lifting the machine and making it float. Under the cutting blade the upward return airstream raises the grass so that it is cut to uniform height.



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WEST COAST GOLF COURSE DEVELOPMENT

By BUDDIE A. JOHNSON
National Golf Foundation
West Coast Facility
Development Consultant

PROBABLY the hottest golf market in the west at the present time is the greater Phoenix area. In the past year, a number of new courses have been opened or planned by all types of developers. Many of the suburbs are planning municipal courses and the ever present sunshine has attracted retired persons in record-breaking numbers. New industry is a daily occurrence in this desert city and more and more housing developments are starting, many with golf courses planned or under construction.

This spurt in activity comes on the heels of a golf course development slowdown in 1971. That's all changed now. The curve is definitely rising and this upward trend should continue for the next five years, at least.

The west has always been a precedent setting region of the U.S. in many arenas. The same seems to hold true in golf course development. It has witnessed the overwhelming number of recreation-residential developments like most other sections of the country, seemingly a phenomenon produced because of the willingness of people to pay an extra premium for homesites adjacent to lush green fairways. Yet other trends seem to be growing without signs of abatement.

One of these is a rapidly growing number of "executive" type golf courses. This type of course has a wide range of flexibility and can be satisfactorily used by golf course developers of all kinds to suit their particular needs and available space. Most 9-hole executive courses range in length from 1800 yards to 2800 yards, using 25 to 50 acres. Their new-found popularity is not surprising when one considers the kinds of options open to the owners.

They use a smaller area than the regulation course. This means that many sites not ordinarily usable can be considered for this type of short course.

They are less costly to construct, require less maintenance and can be played in half the time of a regulation course. In addition, the executive course offers the dedicated golfer the opportunity to hit wood shots on several holes, unlike the par-3 which is usually played only with irons.

This type of course also is a good facility for the "impromptu" market, made up of those who cannot afford the time it takes to play regulation golf.

Examples of this type of course include: The Tucson Estates Golf Course, a new 18-hole layout surrounded by a mobile home development. It was designed by GCA Robert Lawrence of Tucson; The Maricopa Country Parks and Recreation Dept. under the leadership of Tom Wardell, Recently opened their 9-hole Paradise Valley Executive Course in Phoenix, Ariz.; Rancho Bernardo, Calif., a massive new town development in San Diego County, has 27-holes of executive golf to complement their two 18-hole courses, one private and one open for public play. Ted Robinson of Palos Verdes, Calif. designed the new Executive tracks; Monterey Park, Calif., in the heart of metropolitan Los Angeles, opened its new 9-hole executive course in 1971. Built on a garbage fill, this course is heavily played every day the weather permits; a new 27-hole Ted Robinson designed Executive layout is under way in Wilsonville, Ore. just south of Portland; a new 18-hole Executive course is nearly finished on Salt Lake City's east side. It was designed by Bill Neff, Salt Lake City GCA and is being developed by Vaughan Barker.

Many others are in the planning stages and will add to the growing popularity of this newly-discovered type of golf course in the future.

Another emerging trend is the golf course that is related to a mobile home development. With vast numbers of our nations population escaping higher taxes and rising home costs, the mobile home has become a haven for the consumer. Many of those living in these types of dwellings have migrated to the western states, seeking lower retirements costs, year-round good weather, and recreation. Some representative developments are:

Palm Springs, Calif. — The Palm Springs Mobile Home Country Club, offering Palm Springs living at reasonable prices.

Hemet, Calif. — The Colonial Country Club Estates is new and offers many amenities to its residents.

Ogden, Utah — A huge new mobile-home development by local physician, Rex Alvord, is now under construction and should open in 1973.

Federal Way, Washington — The Belmor Park C. C. is part of a large mobile home park.

This trend will continue. Most are being planned on low-cost acreage in order to justify the expense of a golf course, and the relatively low cost of mobile home space.

In terms of new openings, The Western States kept a good pace during the last year. Between Oct. 1, 1971 and Sept. 30, 1972 new course openings in the following states were: Arizona — 12; Idaho — 2; Oregon — 3; Utah — 3; California — 18; Nevada — 2; Washington — 9.

There are indications that the California market is leveling off. Giant companies like Boise Cascade are halting all development in California. So many new second-home housing developments now compete for the consumers money that competition is fierce. California has led the nation in establishing new environmental laws restricting flagrant development of the land, particularly coast-line and mountain properties, prime targets for developers.

Conversely, the Northwest is rebounding from its own economic depression and golf course development, especially in Washington, is going strong once again.

Utah has emerged as a relatively strong golf market, with a strong push in municipal courses. The Bureau of Outdoor Recreation funds in that state have gone to many cities, with 23% of the grants going for golf courses.

Idaho has a long way to go in terms of meeting the demand for new courses. The city of Boise

(continued on page 44)

Question: How do you clear a right-of-way adjacent to herbicide-sensitive crops and ornamentals?

Answer: Very, very carefully.

It's a tough job clearing weeds and brush that infest roadsides and utility rights-of-way. Doubly so since you have to protect bordering private property at the same time.

With normal spraying techniques, no matter how careful you are, it's impossible to control drift. This can result in damage to crops and ornamentals and lead to costly damage suits.

So it's important that an effective weed control program also be an effective drift control program. And of course, economical as well.

The Visko-Rhap program was designed to minimize the spray drift problems while economically and effectively controlling weeds and brush.

Visko-Rhap herbicides are special formulations made to resist drift and withstand wash-off. They're applied in thick, controllable streams that break up into heavy, oil-coated droplets before contact. So when they hit, they stick. And you control only the growth you want to control. You'll also be able to see where you've sprayed.

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But by all means spend some time and find out all you can about Visko-Rhap. It's the spray program that offers you effective weed control and drift control. And peace of mind.

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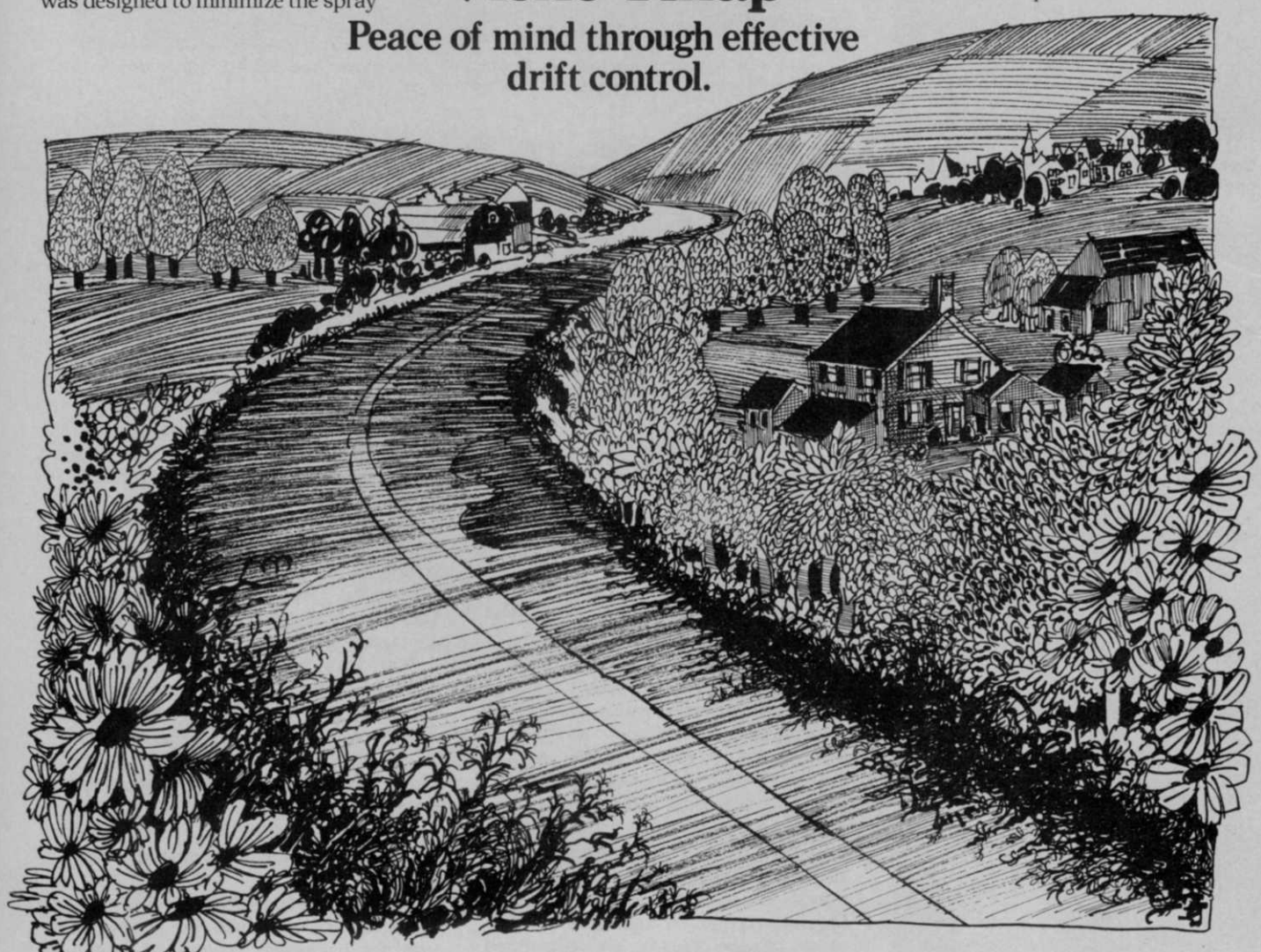


For information on how Visko-Rhap can help you, see your supplier or write Mr. R. P. Rich, Rhodia/Chipman Division, 120 Jersey Avenue, New Brunswick, N.J. 08903.

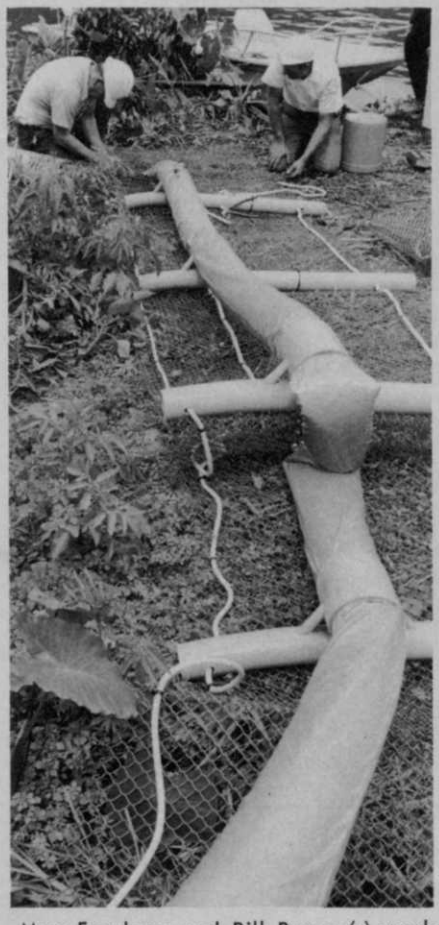
Rhodia
CHIPMAN DIVISION

For More Details Circle (117) on Reply Card

Completed N-Bar installation near near Tampa, Fla.

Work crews install a barrier by floating it into place and then tying it down to concrete blocks. Barrier is easy to maneuver.

Weed Wall For Aquatics



Max Farnham and Bill Boren (r) work on a barrier. Note type of construction.

Mechanical methods of containing aquatic weed growth are being considered increasingly where undesirable vegetation cannot be controlled with chemicals. Indeed, chemical and mechanical as well as biological means are often necesary to bring prolific species of aquatic weeds under control.

One of the newest mechanical systems to be introduced is N-Bar floating barrier. It has successfully been used to control the movement of water hyacinths in Florida. Presently, installations can be seen in Lake Apopka and in the Hillsborough River near Tampa.

How does N-Bar work? The barrier combines features of a floating boom and an underwater fence. It is constructed in 50 foot lengths of plastic-coated metal mesh, 4 feet high, to which risers of polyethylene pipe are attached using nylon tie-wraps. An inflatable rubber boom protected with a sleeve of polyester, rubber coated fabric extends the length of the unit and floats the barrier. Barrier is anchored to concrete blocks. Weeds are contained behind the barrier while water is permitted to travel across the system.

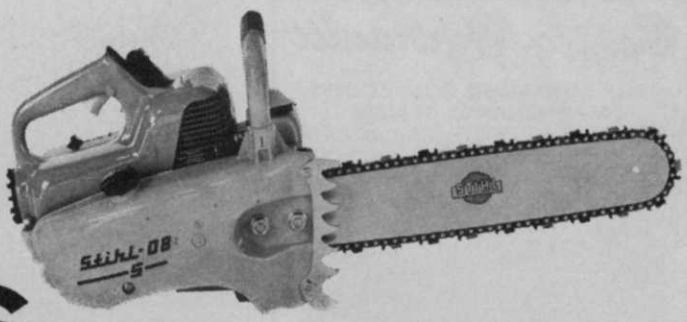
Douglas W. Troll, president of Sea Guard, Inc., manufacturers of the product, says that the plastic and rubber coated system is essentially rust proof. Once installed, the barrier permits passage of water, conforms to wave and wind action, but will screen out most solids. Position of the barrier can be changed when desired. "It can be removed and placed in other desired areas with minimum effort," Troll told WEEDS TREES AND TURF.

Pleasure craft can still use water, notes Troll. By making a series of turns, boats can enter and leave a baracaded area without damaging the barrier or disrupting the weed screening action.

"Our first installation was at the Tampa Water Plant Intake," recalls Troll. "Aquatic weeds had been breaking loose upstream in the Hillsborough River and fouling the plant intake. Pump suctions were restricted. Placing the barrier ahead of the intake area kept unwanted vegetation back yet permitted water to pass."

Sea Guard suggests that other uses for the N-Bar would be in ponds used for irrigation. Algae and weeds could be contained and kept away from intake pumps.

For more details, circle (719) on the reply card. □



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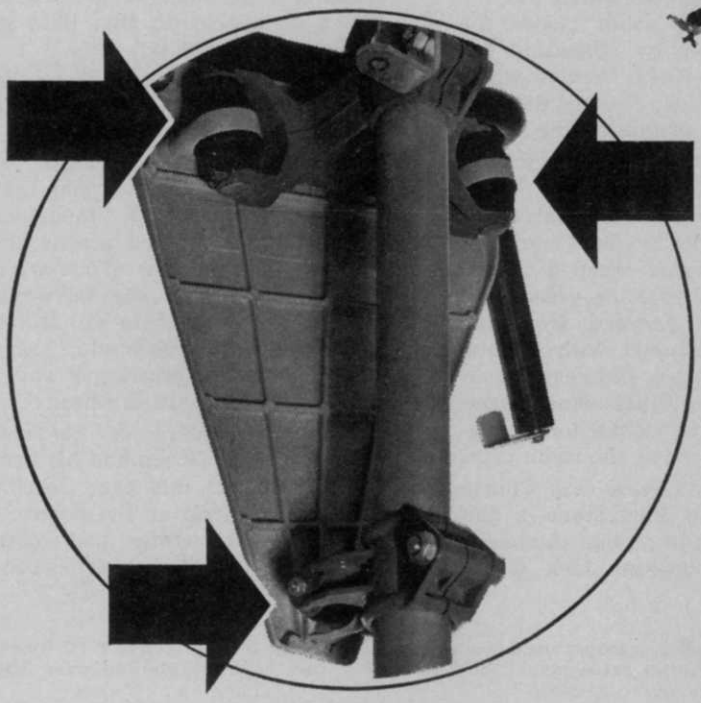

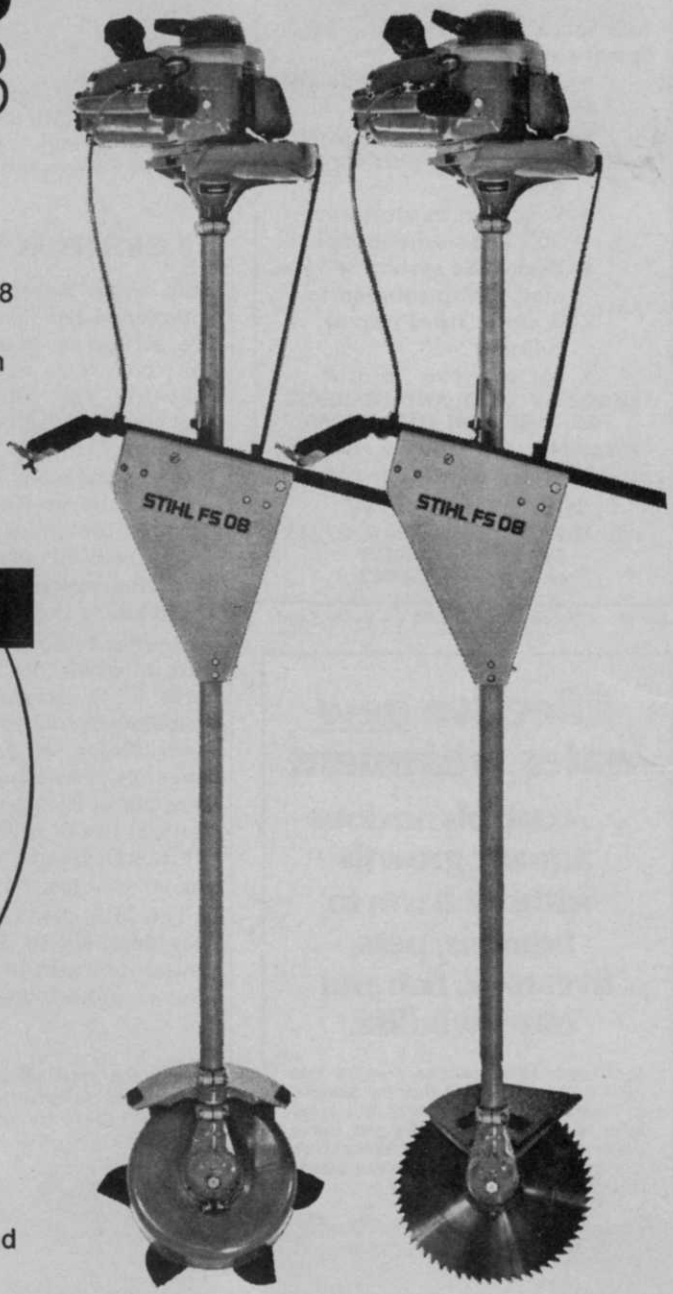

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The 15th (l) and 17th greens stay high and dry as nearly five feet of flood water covers fairways and rough.

18 GREENS IN THE AIR *(from page 24)*

both ways. Seven of the lakes are interconnected by drain pipe and are served by one valved outlet to the river. Two more form a similar network. The 10th is connected to the river by its own valve. As the river level rises, water floods the course gradually by spreading out from the lakes which receive water through the valves. During times of heavy rainfall, surface water drains from the course in reverse — from the lakes to the river. Clever. Yes.

Besides this system for controlling natural water, the course is equipped wtih an automatic electric irrigation system for watering greens and tees. Water is pumped from the river by two pumps with a total capacity of 695 gpm. Delivery is controlled by 8 satellite time clocks which can be overridden for syringing several greens at the same time.

The McFarland Park Golf Course was designed by Earl Stone, a golf course architect in Mobile, Alabama. Course superintendent Jack Green made sure that Stone's plans were properly executed. In fact, he added a lot of touches of his own. Says Green, "I've been working on golf courses for 20 years and I've always wanted to build one and do it right. I had a chance to do that here in Florence. And I did it."

Green selected Tifdwarf Bermuda for his greens and tees because he believes it presents a smoother putting surface. But it also knits together to form a tougher sod that holds soil better — an important point since the elevated greens are vulnerable to erosion. Common Bermuda is used on the fairways. "Several people say this soil is too wet for common Bermuda," says Green. "But we're growing it and I don't see any difficulties ahead."

Although confident of his and Stone's planning, Green had his first anxious moments this past December. As with much of the country, the southeastern states had more than their share of rain. The Ten-

Here's the type of apparatus used to control water level on the course's 10 lakes. Two lakes separating fairways 11 and 12 and 9 and 11 have yielded over 300 balls put there by erring golfers.

nessee quickly rose to its highest level in 7 years and by December 10, the course was under water. The flooding lasted for two weeks. Some of the course was covered with as much as 5 feet of water for three weeks. A few days later, the area was sheathed in ice by an ice storm and hit by the coldest weather of the winter. "But," says Green, "everything passed the test, including our ryegrass winter greens."

Not noticed by golfers but of constant concern to Green and his 8-man crew, is the soil on which the course is built. Says Green, "It's been washing down this river for a long, long time. It's so acid that we have a tough time keeping the pH up. And it holds water so well that we have to wait about 3 days after a big rain before we can really do much on the course."

He adds: "Another thing. It's a mile from one end of the course to the other. But there's only 5 feet of fall. We use a transit every time we dig or fill an area because being off by just a few inches can create a big drainage problem."

Technically, the soil is a loamy silt with clay. And it's deep. Test borings show that there's no change in the soil for 8 feet. Below that there's blue clay.

Jack Green, superintendent of the McFarland Park Golf Course, checks one of his elevated permanent greens protected by plastic during the winter.

Before planting, the course received the following fertilizer and lime: Greens and tees, 100 pounds of basic slag and 30 pounds of 8-8-8 per 1,000 square feet; fairways and green slopes, 2 tons of agricultural limestone per acre and 1,000 pounds of 8-8-8 per 1,000 square feet.

Clearly, the unique location of the course offers a real maintenance challenge. But the course itself is no pushover for the golfer, either. More than 5,200 have played the course since it was dedicated last August 28. Many of them have learned to respect it.

Says course pro, Chip Enlow, "This is a sporty course. You've got to keep the ball in play and hit placement type shots. So far, we haven't worried too much about putting in the planned sand traps. With all that water, those trees, and every green in the air, we haven't missed 'em!" □

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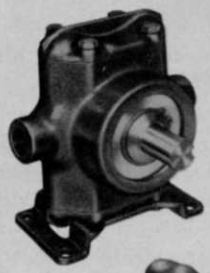

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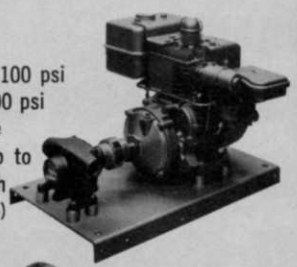

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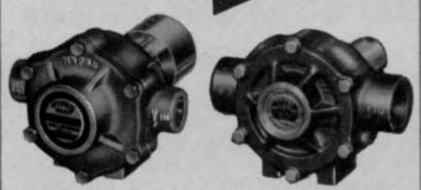

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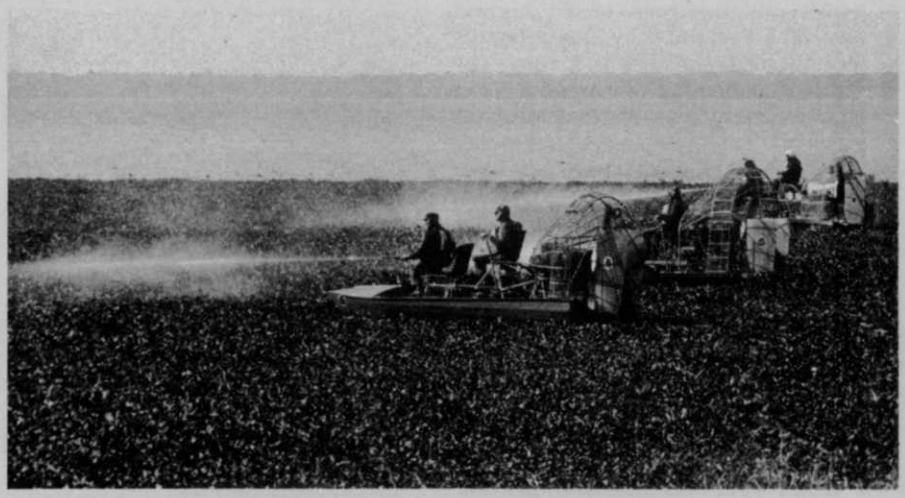

These airboats, part of "Operation Clean Sweep" make headway on the St. Johns River at Riverdale, Fla. Note water hyacinths have practically covered the area adjacent to the shoreline.

OPERATION CLEAN SWEEP

Florida Hyacinth Problem Once Over Lightly

JACKSONVILLE — A two-year study by the U.S. Department of Interior's bureau of sport fisheries and wildlife shows conclusively that 2,4-D does not kill fish in concentrations which are used for hyacinth control and that even a ten-fold error in application rate would not decimate a fish population.

According to Donald P. Shultz, research chemist with the southeast fish control lab at Warm Springs, Ga., there was "no evidence of fish kill" in any of the ponds treated with the herbicide. His recently released scientific report also noted that the aquatic plant control chemical used the Army Corps of Engineers and the Game and Freshwater Fish Commission breaks down within a few days after application.

Schultz' research showed that "there is little danger of the herbicide causing putative (supposed) effects on reproduction ascribed to the chlorinated hydrocarbons." The usual route for biomagnification of pesticides is through the food chain, and Schultz' report said the potential toxicity of the compounds was analyzed as a part of the research.

"Although fish can be killed with DMA-2,4-D, the median tolerance limit (of fish) is high enough that even a ten-fold error in application rate would not decimate a fish population," Schultz concluded.

During the two-year study, the bureau of sport fisheries and wild-

Water hyacinths have covered the east bank of the St. Johns River in this residential area.

life established experimental ponds in Florida, Georgia, and Missouri and sprayed the ponds at rates of two, four, and eight pounds per acre of acid equivalent. The normal rate of application for hyacinth control in Florida is two to four pounds per acre.

Field studies conducted by the Department of Interior at three Florida test ponds showed that 2,4-D residue dropped to barely detectable levels three days after use of the hyacinth control chemical. After 14 day, only a trace of the chemical could be found in the water.

Schultz also showed that seven days after spraying water hyacinths were brown and decomposing. In the tests, 98 percent of the plants were killed by the herbicide application. No fish mortality was noticed nor was there evidence of abnormal offspring from the reproduction of bluegills.

According to Julian J. Raynes, assistant chief, civil land planning section, environmental engineering branch of the U.S. Army Corps of Engineers, South Atlantic, a concentrated 60 day spraying drive against water hyacinths on the St. Johns River began in late February. The project, known as "Operation Clean Sweep," involved eight Army Engineer airboats, each capable of spraying up to 20 acres of hyacinths a day.

Raynes said that a draft environmental impact statement released in December showed that chemical spraying of water hyacinths and other unwanted aquatic plant in Florida is essential until continued research brings forth lower cost control methods.

Cost of mechanically harvesting hyacinths in the St. Johns River would exceed $8 million per year compared with spraying costs of about $228,400 annually. The hyacinth problem in the St. Johns River represents about 10 percent of the statewide aquatic weed problem.

The environmental report concedes that chemical control of hyacinths poses some environmental drawbacks because the sprayed plants sink to the bottom and contribute to the nutrient load.

However, until an economical use of the harvested hyacinth can be developed or some disposal method found, the chemical spraying program in Florida waterways appears to be the only "viable alternative," the environmental report concludes.

Raynes said the environmentalists last year filed an injunction against the use of 2,4-D in hyacinth control. It was lifted, however, this year when the Corps filed the environmental impact statement showing the chemical control is essential to control weed growth.

The engineer pointed out that weather conditions are a big factor in chemical spraying of water hyacinths. For instance, spray crews are not allowed to operate when the water-level wind speed exceeds 10 miles an hour. Wind could cause drift of material to valuable plantings on the shoreline. Similarly, the spraying operation is halted during rainy weather, or whenever there is a heavy dew, since the rain or dew dilute the effectiveness of the spray material.

Raynes related that one hot, new idea for hyacinth control is the use of the laser. Developed by Dr. Ralph A. Scott, Jr., a former Army Corps of Engineers scientist, the laser zaps target plants which wilt almost immediately after irradiation. Plant life is completely destroyed in 8 to 12 weeks. While use of the laser is still strictly in the experimental stage, it represents an entirely new dimension in weed control, heretofore untried. □

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Jeffery L Pochop, vice president special products, Swift Chemical Company, Chicago, tells Par Ex distributors of the extension of the exclusive IBDU contract for Swift through June 1978. Mitsubishi Chemicals Ltd., manufacturer of IBDU has extended the distributing rights to Swift for another 5 years.

Green Industry Newsmakers

PEOPLE PLACES EVENTS

The First Lady, Mrs. Richard Nixon presented awards to thirteen business firms, three institutions and eight municipal governments for outstanding contributions to environmental improvement. Occasion was the 20th annual Landscape Awards Program of the American Association of Nurserymen.

This tractor was designed for heavy-duty Green Industry work. Called G1355, it is the first in a series of Minneapolis-Moline tractor models to be built in the company's Charles City, Ia., assembly line. Ready for a quality and performance check are Harold H. Berk, (l) White Farm Charles City plant manager, Robert E. Kidder, group vice president-farm, White Motor Corporation, and David A. Drewery, (r) director of manufacturing, White Motor Corporation.

This clever gimmick serves two purposes. It tells the curious public why this plastic container is attached to the tree. And it advertises the Guardian Tree Experts, Inc. tree care service. According to Walt Money, Guardian Tree Experts president, the vandalism rate has decreased — and the jobs have increased. Card is paper stock.

Roof Manufacturing Company management meets with leading distributors each year. At this year's two day session are: (l-r, bottom row) Richard Luckadoo, Morgan Bros., Asheville, N.C.; Earl Roof, president, Roof Manufacturing; Wayne Robinson, Yeomans Distributing, Peoria, Ill.; Ray Shoemaker, sales manager, Roof Manufacturing; (middle row) John Brue, vice president, engineering, Roof Manufacturing; Gerry Winterrowd, Yeomans Distributing, Peoria, Ill.; George Neice, Roof regional manager, Red Bank, N.J.; Dick Holliday, R. E. Jarvis Co., Fayville, Mass.; Louis Roof, vice president, Roof Manufacturing; (top row) Easy Whitley, Roof Regional manager, Atlanta, Ga.; Russell Carpenter, service manager, Roof; Jerry Wilson, Roof regional manager, Kankakee, Ill.; Roger Volzer, Supreme Garden Supply, Akron, Ohio; Virgil Arthur, Arthur's Electric Service, Richmond, Va.

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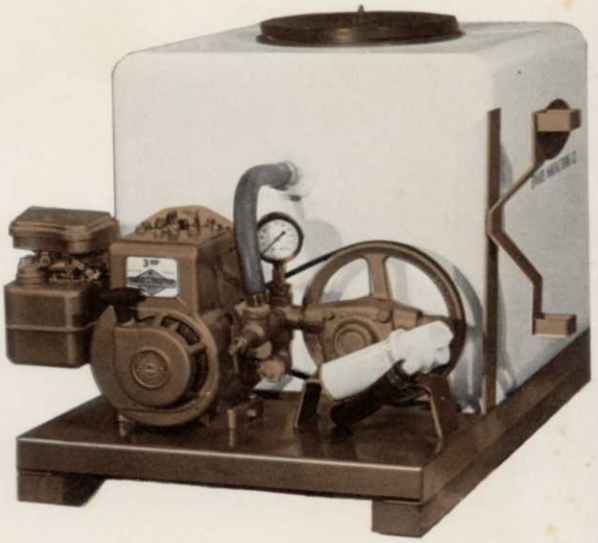

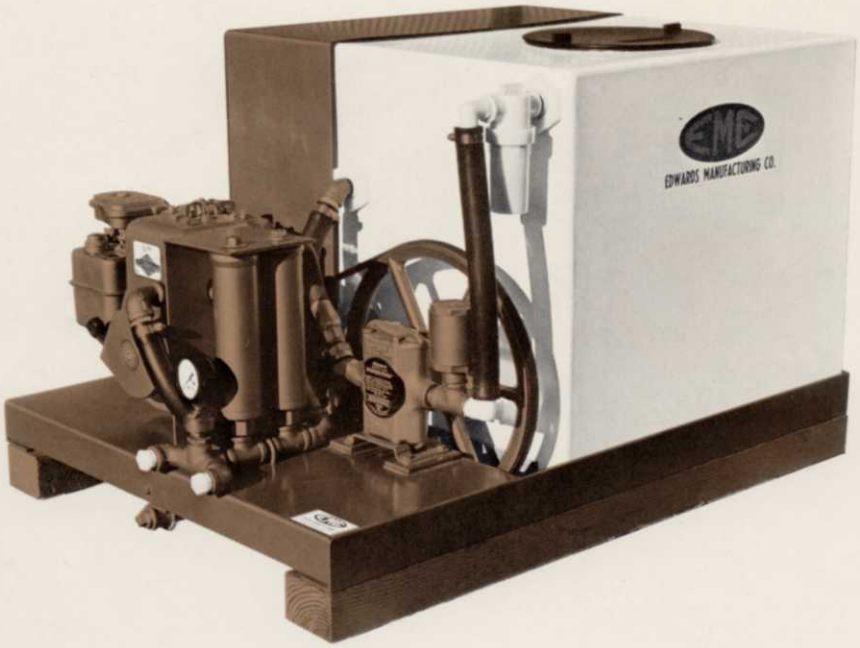

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Five-HP, 100-gallon Turfer Sprayers are available in three models: the 6700 with a 2-cylinder piston pump producing 7 GPM at 400 PSI; the 7560 with a NI-RESIST 8-nylon-roller pump producing 12 GPM at 300 PSI; and the 9200, a centrifugal model producing up to 40 GPM. The Turfer weighs only 230 pounds empty and mounts easily on maintenance vehicles or turf trailers. PTO versions available.

Edwards

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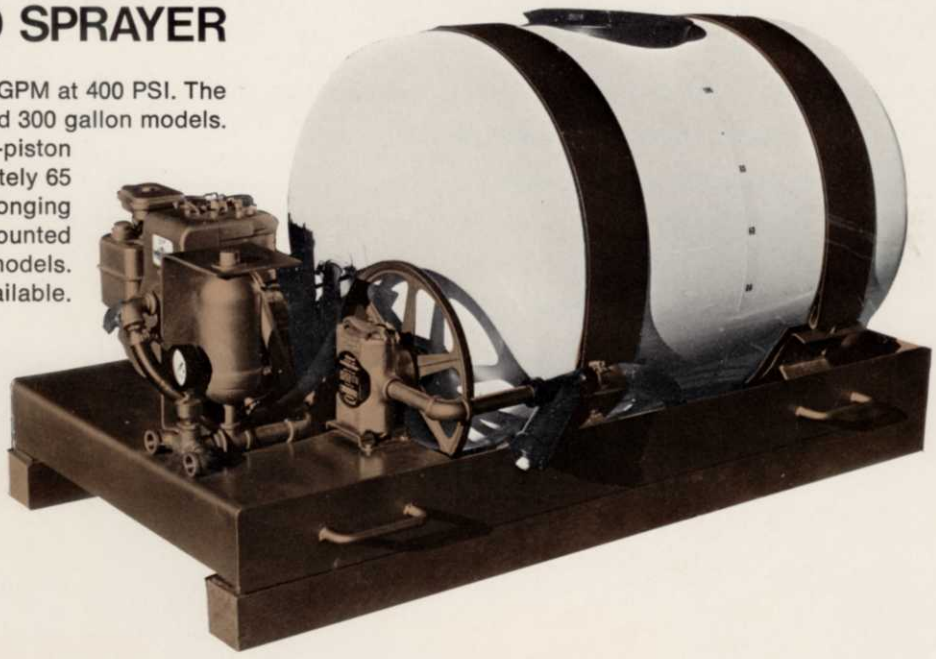
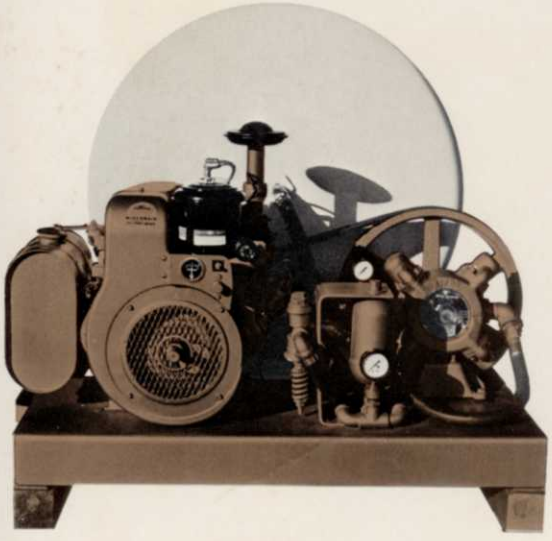
6700 SPRAYER

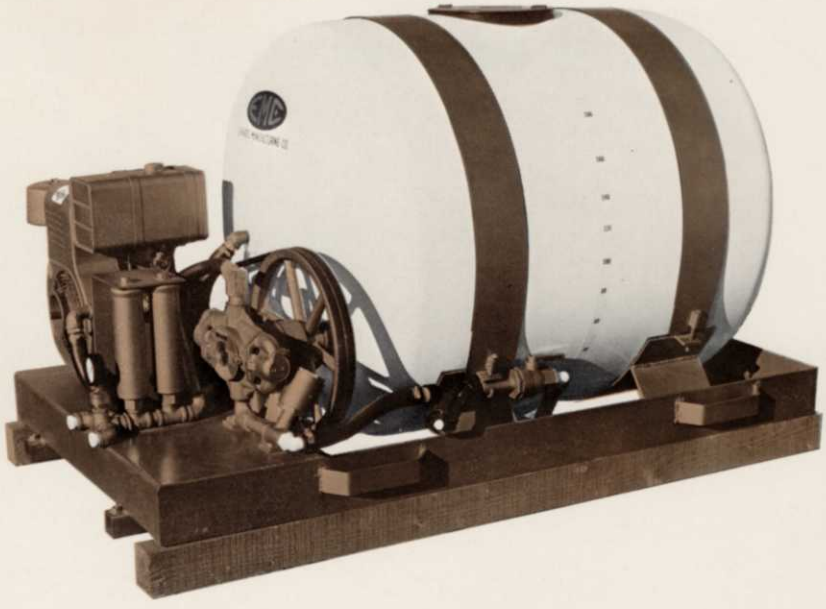
A medium-range model providing 7 GPM at 400 PSI. The 5-HP 6700 is available in 100, 200 and 300 gallon models. All are equipped with Hypro twin-piston pumps which operate at approximately 65 per cent of normal engine RPM prolonging equipment life. The 6700 may be mounted on skids or four different trailer models. PTO versions are available.





5425 SPRAYER

Combining the size for the biggest jobs with the versatility of smaller models, the 18-HP Edwards 5425 provides 25 GPM at 600 PSI. The big 2-cylinder engine drives a large 4-piston pump producing a smooth discharge at any pressure. Both 400 and 500 gallon models are available.



NICKEL 12 SPRAYER

Get 12 GPM at 600 PSI with the 10-HP Nickel 12. This sprayer takes its name from the all-nickel alloy pump with stainless steel valves and cylinders. Both 200 and 300 gallon models are available. Two standard equipment bladder-type accumulators eliminate pulsation problems.

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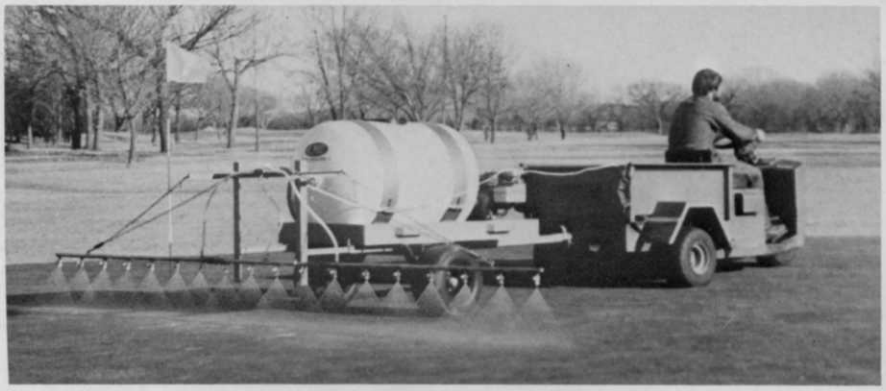

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AQUATIC WEED CONTROL

(from page 18)

cause the tiny leaves have a waxy coating which makes herbicide penetration difficult.

2. Emerged Plants usually grow in water or moist soil with roots attached in the bottom mud. They may spread by means of an underground root system. Leaves and stems of these plants extend above the water surface. Common examples of this type include cattails, arrowhead, water willow, water primrose, bulrush, spatterdock and waterlilies.

3. Submersed Plants are usually, but not always, rooted to the bot- Duckweed is difficult to control betom, and their stems and leaves may fill the water to the surface. Submersed plants have three distinct types of leaf attachments. Whorled leaf attachments are those that have more than two leaves attached at the same point on the main stem. Examples are coontail, watermilfoil and American elodea. Opposite leaf attachments are those with two leaves attached at the same point on the main stem but opposite from each other. Examples of this type are horned pondweed, waterstargrass, southern naiad and brittle naiad. Alternate leaf attachments are those which have one leaf attached singly at different heights on the stem. Examples include leafy pondweed, Sago pondweed, small pondweed. Some alternate leafed weeds have leaves large enough to float. These would include American pondweed, Floatingleaf pondweed, Largeleaf pondweed, and waterthread pondweed.

Miscellaneous submersed plants include water buttercup and bladderwort.

4. Ditchbank or Marginal Plants are those found principally along the water's edge. They are not truly aquatic nor terrestrial. Examples include southern cutgrass, knotgrass, paragrass, torpedograss, water paspalum, southern watergrass and common reed. It is often difficult to identify ditchbank plants when mixed with woody plants.

5. Ditchbank Woody Plants can usually be distinguished from other ditchbank plants by a fibrous or woody plant structure. Trees and brush commonly found along ditches, ponds and other water areas include willow, castorbean, common guava, Australian pine, seamyrtle, tai-tai, and others.

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aquatic weed control in any body of water it is essential to know the species and amount of algae and aquatic weeds present. A moderate to heavy infestation of aquatic weeds with any algae problem is an important consideration in determining the recommendation to be made for algae treatment, for aquatic weed treatment, or for both. The greater the aquatic weed infestation, the more essential it becomes to treat the water either for both algae and aquatic weeds or to increase the dosage used for algae control.

Most all registered algaecides and aquatic herbicides are absorbed equally rapidly by algae and aquatic weeds. Thus, a chemical added to a body of water which is heavily infested with weeds and algae and is being treated only for algae, may fail entirely because much of the algaecide is being absorbed and detoxified by the aquatic weeds.

Other than the kinds and amounts of algae and weeds present, it is essential to know vegetation location in the water, and whether the algae and weeds are young and actively growing.

All plants and algae are easier to kill in their earlier growing stage than when they are mature.

Temperature of water is also important. Treat for algae and weeds in late spring or early summer after water temperatures have reached 62-65° F. and before the aquatic plants have gone to seed.

The physical condition of the water is equally important in assuring successful control of algae and plants. Muddy water rapidly deactivates most of the known algaecides and aquatic herbicides. Thus, a pond should never be treated after a rain when the water may be muddy. Environmental protection chemicals will be rapidly deactivated and performance will not be effective. Be sure not to stir up the shallow water with oars, paddles, motors, or other equipment.

Time of application especially for algae control is important. The best time of the day to treat for algae is in the middle of the day in a bright sun when the algae are growing rapidly. They are much easier to kill when in an active metabolic state. Postpone the treatment if conditions are not right.

Checklist For Algae Control

1. List types and number of bodies of water to be treated. .....
   .....
   .....
   .....
2. For each body of water give the following general information:
   a. Size in acre-feet $\frac{\text{(length x width x average depth)} = \text{No. of acre-feet}}{43{,}500}$
   .....
   b. Kinds of algae present:

(free floating)	(unattached)	(branching)
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....

   c. Amount and location of algae:
   Is entire body of water covered? Yes..... No..... Where: .....
   .....
   Is algae present on bottom? Yes..... No..... Where: .....
   .....
   Are algae present only near shoreline? Yes..... No.....
   Where: .....
   d. Are algae in an actively growing state? Yes..... No.....
   (presence of bright green color and gas bubbles suggest active algae growth)
   e. Are other aquatic weeds also present? Yes..... No.....
   If yes, describe their abundance .....
   State of growth: vegetative ..... mature (seed) .....
   f. Physical condition of water. Is it clear? Yes..... No.....
   Are dirt, clay, organic matter (leaves, etc.) present? Yes..... No.....
   g. Is the water used for irrigation? Yes..... No.....
   h. What is the source of water? Drainage....., Spring.....
   River or creek....., Other.....
3. What has been done in the past to control algae and weeds? List chemicals or other treatment used. .....
   .....
   .....
   .....

Will one treatment control weeds and algae all year? This question is often raised. Usually aquatic weeds can be controlled with one application. It is sometimes necessary to spot treat a week or two later to take care of weeds which may have been missed by the initial application. For algae control it is usually necessary to treat more than once a season, followed by periodic spot treating when new growth appears.

Algae are better controlled if the algaecide is applied directly on the algae. If a pond has filamentous algae concentrated primarily near the shore or on the bottom in the shallow areas, use the recommended amount of algaecide to treat the entire pond but apply it only where the algae are growing. Never add algaecide to clear algae-free water, It probably will be wasted.

Finally, if the weed and algae growth are moderate to heavy, don't treat the entire body of water at one time. Treat half of it one week and half a week or ten days later. This will insure that the dead weeds and algae will not rapidly and completely deplete the dissolved oxygen. A great number of fish kills result not from any toxic property of the chemical used but from a lack of oxygen caused by decaying dead algae and weeds.

Algae and aquatic weeds can usually be controlled satisfactorily in most bodies of water. To obtain satisfactory control, however, it is necessary to survey the body of water, to determine the kinds of weeds and algae present, the area, and the flow of water through the pond or lake. On the basis of this and other information a sound and successful recommendation for treatment of the body of water can be made. □

Man Major Agent In Seed Dispersal

Man is the most important agent in seed dissemination reports Frieda Wertman of Central Seed Laboratory in Hopkins, Minn.

The distribution of agricultural and garden seeds is the prime source of weed seeds. Almost every crop includes some seed which resembles the desirable kind in size-shape-weight and even color so well that even the best cleaning equipment does not do a perfect job.

The actual spread of species varies. A large number of plants remain confined to the area where they were introduced; others spread rapidly even though they had been introduced but once.

Significant though man's role is, Ms. Wertman noted, plants, fruit and seeds have natural means of dispersal. Wind, water, animals and structual features of the seeds help in seed dispersal.

Minute seeds like witchweed, paint-brush and orchids can be borne aloft like dust for miles. The wind also carries heavy seeds that are plumed like the milkweeds, thistles, dandelions and willows or with wings like maple, poplar and dock. Gusts of wind may blow seeds across the surface of snow and ice or hasten their progress downstream.

The winged fruits of common dock have corky protuberances which permit them to float. These seeds also provide food for rodents and birds or if dropped in mud along with other seeds that occur in wet areas, they adhere to the feathers, feet or fur of other animals.

Burred fruits and seeds like cocklebur, buffalobur, sticktight may help in the dispersal of the plant but they are more than a nuisance.

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"That's the third shot he's ruined today."

Motivation— Is The $ Enough

The speaker, Donald C. Zick, and his audience at the Midwest Regional Turf Conference agreed: accomplishment or achievement is one of the best motivators of employees.

Zick, manager of employee training and development at the University of Missouri, asked an audience of 734 at Purdue University recently to sum up in one word "what really motivates your people more than anything else."

Among the responses he received were recognition, accomplishment, dollars, satisfaction, desire, pride, responsibility, ability, security, involvement and appreciation. A show of hands decided that accomplishment and recognition were probably the most important.

Accomplishment is number one in motivational importance, he said. An employee must feel that his job is a challenge and that his is really accomplishing something.

"Accomplishment or achievement is the start of a sequence or cycle. Once an employee has a sense of achievement, he will have recognition, desire to do more, more appreciation for his job and from his employer, more job security and perhaps more responsibility and more money," he said.

Zick cautioned that it is "the individual and not the general principal that applies." Employers need to go through the sequence for each employee following the sequence until they find the one element that is lacking and then build from there.

Accomplishment as the primary motivator also gives the employer something to work with. The employer can "get the roadblocks out of the employee's way"—eliminate the obstacles that impede the employee's chance to feel that he is accomplishing something.

Although accomplishment or achievement is the most important motivator, other factors can also affect employee performance. Security, for example, can be both a "motivator and a demotivator. "An employee must have a certain amount of security in order to achieve or accomplish," stated Zick, "but too much security can be a demotivator. The employee will get the attitude that no matter what he does, he won't get fired."

Another motivator, expectation, can be very effective in employer-employee relations. Zick emphasized that an employer "must let his people see that he expects a lot from them" for studies have shown that people will live up to the expectations that employers have of them whether good or bad.

Fear, although a great short term motivator, is definitely not a good long term motivator. If fear is present as a motivator for a long time, the employee will not have high standards of achievement or will look for a new job.

According to Zick, money, often though to be the most important motivator, is not a continual one. If the employee has money, he has the ability to be happy, but the money alone may not make this so. If he doesn't have what he considers to be a just wage, other things cannot make him happy. In addition, although an employee may be satisfied with his pay now, he may not be satisfied with this same wage in the future.

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WEST COAST GOLF COURSE

(from page 28)

opened its first municipal golf course only this past summer. New resort and housing developments however will be on the increase in the near future.

Golf will continue to be a major recreational outlet for westerners. Judging from the number of people who vacation and retire in our states, golf courses will continue to multiply in order to meet the demand.

In addition, a number of existing courses have begun new additions to their facilities. Prospects include: Arizona — 11; Idaho — 5; Nevada — 2; Utah — 4; California — 23; Oregon — 4; Washington — 7. □

New Course Openings By Type, Oct. 1, 1971 — Sept. 30, 1972

	Regulation	Executive	Par-3
Arizona	10	2	..
California	11	6	1
Idaho	2	..	..
Nevada	2	..	..
Oregon	2	..	1
Washington	8	..	1
Utah	3	..	..

Golf Courses Under Construction, Oct. 1, 1971 — Sept. 30, 1972

	Regulation	Executive	Par-3
Arizona	8	1	..
California	12	4	2
Idaho	2	..	..
Nevada	1	..	..
Oregon	1	1	1
Washington	9	..	..
Utah	4	1	1

A GROWING BUSINESS

(from page 20)

at servicing smaller businesses after the firm's formation in 1970. Clients now include electric companies, used car lots, and several manufacturing plants, among others. Hoover figures his charges on the basis of the number of square feet treated.

"We usually start treating toward the end of March and work through November," he says. "Our work day during the application season may run from 6 a.m. until 10 p.m. We feel we have to generate $500 to $700 daily during this season. The aquatic treatments start in May and run through September."

The "we" of Control Services includes Hoover; his father, Herbert O. Hoover, Sr.; Larry Maher, former chemical salesman and, as of June, 1973, Charles Madson.

Madson and Hoover were fellow teachers in northern Iowa, and Madson now has a master's degree in aquatic biology.

"He has helped us part-time, explains Hoover, "but he'll be full time in June. Larry and I have the aquatic weed control know-how and Chuck will provide the over-all picture—he'll be concerned with the aquatic balance of nature, the relationship of plant life to fish, etc."

Hoover expects to add a fifth person in the near future. Selling is done during the winter and early spring, and the summer and fall are taken up with application work. He feels another man would provide year-round selling directly or through relief of others during the busy season.

"At present each of us is an employee of the corporation and rather autonomous," says Hoover. "Each has a pickup with a skid-mounted sprayer in the truck. All the clean ground chemical work is based on the use of triazines and is done through hand guns. Most of the equipment is something we've designed and then gone out and bought the components for."

All four men are located in different parts of the state and radiate out from there to cover the area and neighboring states. Hoover is licensed in Iowa, Minnesota and Illinois and registered in Wisconsin.

What's ahead for Control Services? "Both the aquatic and industrial segments are expanding as we sell more contracts," Hoover says, "and they may end up separate divisions. As of now, I want the business to grow only to the point where we can get the work done."□

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—meeting dates—

Florida Nurserymen and Growers Association, The Breakers Hotel, Palm Beach, Fla., May 17-19.

Rutgers Turfgrass Research Day, Dudley and College Farm Roads, College of Agriculture and Environmental Science, Rutgers University, New Brunswick, N.J., June 12.

Western Chapter, International Shade Tree Conference, annual meeting, Hotel Utah, Salt Lake City, Utah, June 17-20.

International Turfgrass Conference, 2nd annual, Virginia Polytechnic Institute and State University, Blacksburg, Va. June 19-21.

Texas Turfgrass Field Day, Texas A&M University, agronomy field lab, College Station, Tex., June 27.

South Carolina Turfgrass Conference, 4th annual, Clemson House, Clemson, S.C., July 10-11.

American Association of Nurserymen, Radisson Hotel, Minneapolis, Minn., July 14-18.

Hyacinth Control Society, Hotel Monteleon, New Orleans, July 15-18.

American Sod Producers Association, annual meeting, Denver, Colo., July 16-19.

Plant Science Day of the Connecticut Agricultural Experiment Station, Lockwood Farm, Hamden, Conn., Aug. 8.

International Shade Tree Conference, 49th annual meeting, Sheraton-Boston Hotel, Boston, Mass., Aug. 13-16.

International Pesticide Applicators Association, annual meeting, Marriott Inn, Berkeley Marina, Berkeley, Calif., Aug. 15-18.

North Dakota State Horticultural Society, annual meeting, Canada Department of Agriculture Research Station, Morden, Manitoba, Aug. 21-22.

Turf and Landscape Day, Ohio Agricultural Research and Development Center (OARDC), Wooster, Ohio, Sept. 11.

Course for Licensing of Tree Pruners, Agricultural Extension Centre, Brandon, Manitoba, Canada, Oct. 1-5.

Society of Municipal Arborists, 9th annual meeting, Flint, Mich., Oct. 3-5.

Southwest Turfgrass Conference, Albuquerque, N.M., Oct. 11-12.

Industrial Weed Control Conference, 8th annual, Texas A&M University, College Station, Tex., Oct. 15-17.

Turfgrass Equipment & Materials Educational Exposition, 13th annual, sponsored by Southern California Turfgrass Council, Orange County Fairgrounds, Costa Mesa, Calif., Oct. 17-18.

Central Plains Turfgrass Conference, Manhattan, Kans., Oct. 17-19.

California Weed Conference, Woodlake Inn, Sacramento, Calif., Jan. 21-23.

Southern Weed Science Society, Sheraton Biltmore Hotel, Atlanta, Ga., Jan. 22-24.

Weed Eating Insects Can Be Beneficial

Weed-eating insects can have an important role in the non-chemical suppression of weeds. About 70 weed species are under study throughout the world for such biological control, according to a U. S. Department of Agriculture entomologist.

Dr. Lloyd A. Andres of USDA's Agricultural Research Service (ARS), Albany, Calif., says that the weed-eaters are well adapted for the role because they multiply so fast and because they pick out only certain specific weeds to feed on.

"When a specifc weed is suppressed, the particular insect feeding on it decreases in numbers, and if the weed "takes hold" again, the insects increase in numbers," Andres says.

"The successful control of Klamath weed on Northwestern ranges in the 1950's, the control of pricklypear cactus on Santa Cruz island off the coast of California, and the partial suppression of alligatorweed in the Southeastern United States, are but three examples of the use of insects for weed control."

The entomologist says that while insects do not completely eliminate weeds they keep them within manageable limits with minimal environmental disturbance and at comparatively little cost.

There are some disadvantages to this type of control, he notes, including the slow rate of control—it may take from 3 to 10 years for suppression to be noticeable; and conflicting interests. As an example, conflicts may come when a plant is considered a weed by farmers in one part of the country and of value by wildlife enthusiasts in another part.

U. of Cal. Frank Robinson Given S. I. A. Award

Dr. Frank E. Robinson, associate water scientist at the University of California, was named 1973 recipient of the "SIA Man of the Year Award" at the recent Sprinkler Irrigation Association Technical Conference.

The award was presented at the Annual Banquet of the organization during the meeting in Dallas, Texas, and is the highest recognition given by the Association and the industry. It is presented annually to university or government personnel "for significant contributions in the field of sprinkler irrigation."

Robinson, whose major interest is in irrigation management and soil salinity control, has been with the University of California since 1964.

Professional Turf Manual Released By DuPont Co.

A Professional Turf Manual which highlights the causes and symptoms and control of most turfgrass diseases has been released by the Du Pont Company. The manual also features fertilization and weed control recommendations.

The 34 page manual includes large full color pictures showing diseases as well as life cycles. Du Pont says that this is the first time a manual of this nature has been published in this country with such a large number of full color illustrations.

For more details, circle (721) on the reply card.

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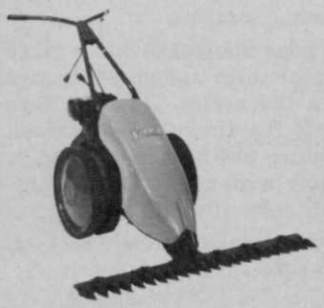

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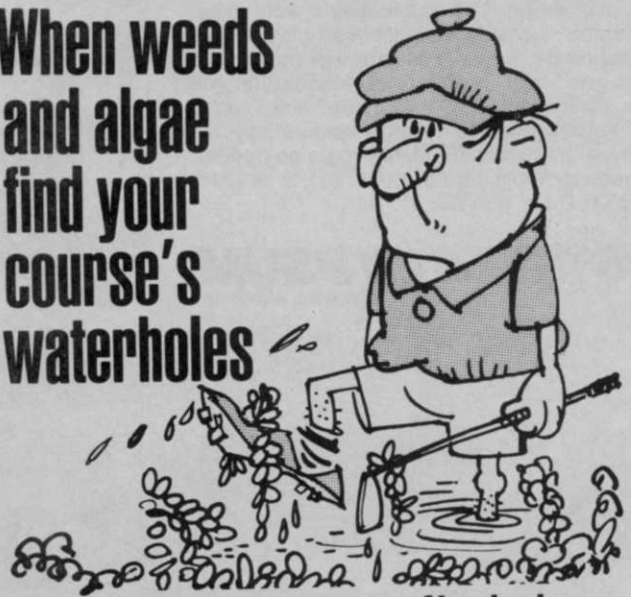
When weeds and algae find your course's waterholes



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industry people on the move

LEONARD R. SWARTZ, named technical sales representative for the agricultural division of ICI America Inc.

* * *

JOHN HASTINGS appointed sales manager at Oseco Ltd. He will be responsible for market development for the company's full range of products.

* * *

DR. STEPHEN J. NELSON, named research associate in the TUCO plant health research and development division of The Upjohn Company. He will be involved in synthesizing new insecticides and fungicides.

* * *

MARION A. EGGLETON, appointed market research manager, a newly created position for Amchem Products, Inc.

* * *

DR. JAMES FRELICH, joins O. M. Scott & Sons research division. He has been assigned to the special projects section at the company's headquarters in Marysville, Ohio.

* * *

KEN FINDEN, to the new position of director of environmental affairs for The Toro Company. He was director of engineering services and product safety.

* * *

BILL TATRO, CLYDE KENGREY and GERALD TAYLOR, to head up a new branch sales and service outlet for Lockwood Corporation. New firm will be located in Idaho Falls, Idaho and will specialize exclusively in center pivot irrigation systems.

* * *

H. RICHARD SCHNEIDER named field specialist for the crop aid products department of International Minerals & Chemical Corporation.

* * *

J. E. THOMPSON appointed sales development manager for agricultural chemicals by Rohm and Haas Company. He was formerly manager of the Texas district.

* * *

ARTHUR L. STEVENS, joined Thompson-Hayward Chemical Company as an agricultural sales representative. He will be located in New Orleans, La.

* * *

RICHARD A. LANG, named district sales manager for Bolens Division, FMC Corporation. He will be responsible for sales in the northern half of Illinois.

* * *

BERNARD BERENGARD becomes director of sales and marketing for Melnor Industries.

* * *

FREDERICK J. CLOSE, elected a director of American Garden Products, Inc. He has been active in the American Horticultural Society of which he is an officer.

* * *

E. J. CARNINO, appointed project accounting coordinator for Agrico Chemical Company. He will be responsible for the accounting procedures related to the company's construction projects at Donaldsonville, La. and Tulsa's Port of Catoosa.

* * *

RALPH W. GEBHARDT, becomes director of marketing for Grass Growers, Inc. He has helped develop the techniques and methods covering all phases of hydrograssing and mulching. Company location is in Dallas.

For More Details Circle (129) on Reply Card

Irrigation Consultants Elect New Officers

The American Society Of Irrigation Consultants has announced new officers for the 1973 term.

George Bell was installed as president, Richard Kirby, vice president, and Ron Sherman Secretary-Treasurer.

ASIC is starting its third year. The purpose of ASIC is for the advancement of education and skill in the art of irrigation design and consultation as an instrument of service in the public welfare, and to promote honest and ethical professional practices.

Lyle R. Heath (1) of West Lafayette, Ind. discusses turf studies with Kenneth R. Griepentrog, Tulsa, Okla. and James W. Uptgraft, West Lafayette, Ind. All were scholarship winners at the Midwest Regional Turf Conference.

Purdue Turf Students Receive Scholarships

Three Purdue University students majoring in turf studies received scholarships at the Midwest Regional Turf Conference recently.

Recipient of the Golf Course Superintendents' Association scholarship worth $500 was Lyle R. Heath, West Lafayette, Ind.

Other scholarship winners were James W. Uptgraft, West Lafayette, and Kenneth R. Griepentrog, Tulsa, Okla. Uptgraft received $250 and Griepentrog, $150.

These scholarships—given for the first time—were from a fund established by former Purdue turf students as a tribute to Dr. W. H. Daniel, Purdue turf specialist.

Elected 1973-74 officers of the Midwest Regional Turf Foundation, sponsors of the conference along with Purdue's department of agronomy, were Dudley Smith, superintendent, Silver Lake Country Club, Orland Park, Ill., president; James Timmerman superintendent, Orchard Lake Country Club, Orchard Lake, Mich., vice-president; and W. H. Daniel, Purdue turf specialist, executive secretary (re-elected).

New directors are David S. Ralston, Miller-Wihry-Sabak-Wilson & Lee, Louisville, Ky.; John Spodnik, Westfield Country Club, Westfield Center, Ohio; and Donald Clemans, superintendent, Wabeek Development Co., Bloomfield Hills, Mich.

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For More Details Circle (136) on Reply Card

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—insect report—

TURF INSECTS

CINCH BUG
(Blissus leucopterus leucopterus)

KANSAS: Annual winter survey, including 57 counties, completed March 9. Total of 219 bunch grass samples taken. Samples generally indicated non-economic infestations. Moderate to near severe populations found in at least one sample in McPherson and Montgomery Counties. Heaviest count, 914 per square foot, taken in little bluestem from Montgomery County. Number of bugs surviving until early March 1973 generally lower than 1971 and 1972 in north-central and central districts. Counts in 1973 remained about same as 1972 in northeast and south-central districts, counts slighly higher in east-central and southeast districts.

ANTHOCORID BUG
(Orius tristicolor)

IDAHO: Collected from bluegrass at Post Falls, Kootenai County, July 1, 1970. This is a new county record.

INSECTS OF ORNAMENTALS

NATIVE HOLLY LEAFMINER
(Phytomyza ilicicola)

TENNESSEE: Larvae observed tunneling in holly leaves in eastern and middle areas. Larvae apparently overwintered in leaves, unusual for the State.

OYSTERSHELL SCALE
(Lepidosaphes ulmi)

OREGON: Heavy on *Pachysandra* sp. in Salem, Marion County, many parasitized. Occurrence on ornamentals, particularly in heavy numbers, uncommon in State. This is first record on this host in State.

TREE INSECTS

SOUTHERN PINE BEETLE
(Dendroctonus frontalis)

ALABAMA: Additional groups of 2-10 pine trees observed dying along highway in Cleburne, Randolph, Chambers, and Lee Counties. Nature of recent mortality indicates *D. frontalis* and *Ips* spp. (engraver beetles) active. Woodpeckers very active on several recently dead trees feeding on larvae, pupae, and adults.

ELM LEAF BEETLE
(Pyrrhalta luteola)

KENTUCKY: Adults emerged from hibernation and nuisance to homeowners in Washington County. COLORADO: Overwintering adults active in Loveland area, Larimer County.

NATIVE ELM BARK BEETLE
(Hylurgopinus rufipes)

MINNESOTA: Survey of elm along St. Croix River north of Stillwater, Washington County, and along Crow River in Hennepin and Wright Counties revealed that only galleries of this species were numerous especially in areas where Dutch elm disease had killed many trees.

SAN JOSE SCALE
(Quadraspidiotus perniciosus)

OKLAHOMA: Damaged live oak trees in Stephens and Kiowa Counties.

BENEFICIAL INSECTS

LADY BEETLES

MISSISSIPPI: Vacuum samples indicate heavy populations of *Coleomegilla maculta* in Bolivar County alfalfa; estimated 27,500 adults per acre. Probably feeding on heavy population of *Acyrthosiphon pisum* (pea aphid) *C. maculata* first-generation eggs noted. ARIZONA: *Hippodamia convergens* (convergent lady beetle) very heavy in plum, apricot, and peach trees at Queen Creek, Maricopa County.

For More Details Circle (152) on Reply Card

Treat Specific Problems For Better Algae Control

By DR. WILLIAM G. PATERSON
Manager, Environmental Products
New Business Ventures Div., 3M Company

Grounds management people, experts in how to maintain broad turfgrass areas and sweeping fairways in "putting green" condition, often show less expertise when it comes to treatment of ponds, canals and waterways.

An uninformed but frequent initial response to undesired aquatic plant life is to use the shotgun method of control, which could eliminate the good — some plant life, fish and wildlife habitat — along with the bad.

Modern aquatic weed science is now ruling out this all or nothing approach. Specialists and researchers have found that a rifle-shot approach to the problem protects desirable plant and animal life, yet rids the unwanted vegetation problem. The key to this new approach is specific diagnosis. Currently, environmental protection chemicals registered for aquatic weed use are designed to control specific types of algae and weeds.

One example of a newly registered compound is System M, a Mariner brand algaecide developed by 3M Company. System M has been tested under a variety of conditions throughout the United States. Additionally, the product has been used extensively in control of algae by the Lakes and Waterways Management Service (LAWMS), a division of the company located in Florida.

Algae is generally of three types, filamentous, plankton and branched. No true root system characterizes most algae, although branched algae are erect plants which often seem to be attached to the bottom. Chara is the most common of branched algae, and it often is hard to identify because it looks like an aquatic weed.

Filamentous algae appears as floating or drifting "scum" or mats of hair-like strands; or moss-like tufts clinging to the bottom. It is the most unpleasant of the three types in terms of appearance and effect on use of the waterway.

Plankton algae, sometimes referred to as "bloom," really is minute plant life that is free-floating. It gives the water a green color.

We've found that when applied properly, System M is particularly effective against filamentous and branched algae. It quickly comes in contact with algae and very little remains in the water, itself. Uniform coverage of the infested area is necessary for control, however. The Federal label provides for a wide margin of safety for fish and other wildlife.

Control of plankton is achieved with System A, a liquid copper formulation. It has been most effective in controlling this free-floating aquatic plant.

Algae is only one of several growth problems that plague property management people. Milfoil, hydrilla and water hyacinth and many others, depending upon climate and geographical location, may be greater problems. The trick is to learn to live with and control aquatic plant life, while maintaining desirable ecological balance. With continued research, the means are at hand. □

For More Details Circle (109) on Reply Card

ALLIGATORWEED ERADICATION PROBLEM IDENTIFICATION *(from page 14)*

of water by 80 percent in some channels. And to top it off, mosquito populations, which thrive in infested waterways, were becoming difficult to control.

Thus, in 1966 the California department of agriculture and the Tulare county agricultural commissioner's office launched a concentrated effort to eradicate alligatorweed. Surveys of over 300 miles of waterways disclosed 72.6 acres (29 miles) of infested channels and a small amount creeping into irrigated cropland.

The problem was complex and staggering to imagine. A better understanding can be gained, however, by noting that *one* measured plant produced *56 feet of lateral foliage growth in one season.* Upwards of four tons of root growth per acre in the top four inches of soil and a depth of fleshy roots three or more feet into the soil have been reported. The hollow, crisp stems of the plant are buoyant, break off readily and float downstream to create new infestations. Nodes occur every two to eight inches and quickly produce roots or foliar growth.

Back in Los Angeles county, we weren't overly concerned initially with the alligatorweed infestation because of its reported aquatic nature. At first it appeared the weed had nowhere to go except into the ocean where it would perish in the salt water. However, this was not the case.

As we continued our investigation, the situation that unfolded had all the drama and intrigue of a motion picture thriller. The Rio Hondo and the San Gabriel rivers converge to within one mile of each other at the Whittier Narrows. The dam straddles both rivers at that point. Above the dam, the Rio Hondo is unimproved for two miles and the San Gabriel for about three and a half miles. Below the dam the Rio Hondo is concrete-lined and the San Gabriel remains dirt-bottom for another 7.2 miles before it becomes concrete-lined to the ocean.

Additionally, each river below the dam can be diverted into several hundred acres of adjacent groundwater replenishment basins. This is the basis of a major flood control/replenishment system operated by the Los Angeles County Flood Control District.

Silt deposited by flood waters in the basin area displaces water storage capacity by about 20 acre-feet annually. Full storage capacity is needed about twice a year. On the other hand, this silt soil is highly desirable to nurserymen for potting soil, to contractors for a variety of fill-dirt needs and to householders wanting some easily accessible free soil. Since the silt deposits had to be removed for water storage space, the county was happy to provide it to taxpayers.

But the plot became more complex when it was discovered that the soil contained nodes, stems and other parts of alligatorweed. Movement of soil perpetuated the spread of the plants.

In 1970 we put a hold on the soil. The U.S. Army Corps of Engineers and the Los Angeles County Flood Control District, agreed to halt soil movement out of the area. In addition, Los Angeles county joined Tulare and Kings counties in being proclaimed an alligatorweed eradication area by the California department of agriculture. This strengthened our legal control over infested premises, but because of the area's size and accessibility to the public, it didn't completely halt unauthorized soil removal.

Also in 1970, an infestation of alligatorweed was discovered at Puddingstone Reservoir, a county park's recreational facility about 26 miles from the parent infestation. We obtained funds from the county fish & game commission to subsidize detection surveys at all similar county facilities having standing bodies of water. No additional infestations were found. But the threat of an outbreak was ever present.

The problems we faced that year were acute. Without water, crops turn brown, floods cannot be contained and disaster is eminent. Because Tulare county was already in a testing and control program, many of their methods of control were quickly adapted to Los Angeles county.

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(continued on page 70)

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ALLIGATORWEED ERADICATION ANALYSIS AND CONTROL *(from page 15)*

resulted in chlorosis or a yellowing of the alligatorweed foliage. In tests in Los Angeles county, soil active materials such as the substituted ureas and the uracils were ineffective due to the extremely sandy soil and the huge volumes of water covering much of the area several times during the year.

Generally we found that we could eliminate the aerial portions of the plant with applications of contact herbicides. Silvex also performed well in burning back vegetative growth, however it and other phenoxy herbicides are not highly effective on root kill.

Most translocative materials were tried. Amitrole and dicamba looked fair. Studies by USDA and others indicate that whereas translocated herbicides move freely in the main part of the alligatorweed transport stream, they do not translocate from the main stream of the system to the buds at each node, or to any other inactive growth tissue.

Growth regulators and fertilizers were looked into. Fumigants were encouraging. Tarping with black polyethylene for 92 days, where temperatures under the tarp reached 190 degrees, only produced chlorotic whitening with recovery after removal of the plastic. Methyl bromide under tarps worked well where there was no water in the root zones. But carbon bisulfide injections proved too hazardous (flamability) and like methyl bromide proved too time consuming and ineffective on large scale operations.

Many adjuvants were tried in combinations and singly.

Los Angeles county tests produced different results than those in Tulare County. Test pilots administered by the University of California in 1963 showed Tordon 22K picloram weed killer to be ideal for the task. Away from water, product effectiveness and economy made it hard to surpass. It was ruled out in 1968, however, for lack of registration and possible hazards due to the nature of the infested area.

Likewise, a combination of Amitrole and Silvex looked promising. It controlled alligatorweed located away from the water, but was less effective on plants growing near the water's edge.

The Tulare County test program was slightly more advanced than the Los Angeles County program. Thus, we concluded, after a thorough analysis of the test data, that a combination of VPM or Vapam soil fumigant and paraquat applied as a foliar drench was the most effective method of control. Application rates were one quart Vapam, one pint paraquat and eight ounces surfactant in 25 gallons of water per 100 square feet. This combination showed excellent results within a very short period of time. The Vapam affected the root zone and the paraquat controlled foliar growth.

In November 1967, county, state and irrigation district spray crews began treatment in ditches near Porterville and Visalia. Private applicators were contracted to treat (under project supervision) other areas.

Applications were made with the same degree of precision demonstrated in the test plots. Areas were staked off into 100 square feet plots and rigs were calibrated to spend five minutes per plot. In heavily infested areas, where the mat of foliage measured nearly two feet deep, penetration was slow and difficult. This prevented, in some cases, complete contact with all foliar portions of the plant. Usually new plants formed from the nodes of

(continued on page 55)

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ARBORIST SHOP TALK

By Hank Harvey Jr.
Rutledge, Pennsylvania

Five Sure Ways Of Losing Tree Customers

TRYING TO CON THEM

Jive, the big bluff, whatever you want to call it, it's still the same. Deceit. People hate to be lied to—and don't underestimate the average homeowner's intelligence. Even though they might not understand what you're talking about, they often have an uncanny knack for knowing whether or not you know.

Many times the three wisest words in the world are, "I don't know" (after which you can always add . . . "but I'll find out for you.")

Nobody expects you to know everything about trees they only want the solution to their own particular problem. They'll be more impressed by you if you find the right solution than if you rattle off a bunch of meaningless double-talk.

Your customer's confidence in your honesty is valuable to you. Don't blow it!

UNDEPENDABILITY

If you tell someone you'll do a certain job at about a certain time . . . you are obligated to them to do that or let them know in adequate time if there is a change.

Too many tree men are too independent for their own good. Maybe they think that they are their own boss and not obligated to anyone.

That's wrong. Every customer is your boss . . . until the job is done and you are paid.

And if they are not satisfied . . . you or your company will probably never do another job again for them.

Even if you start a job promptly and just take off a few limbs to "tie up the job" then let it go for days without any communication with the customer, you'll only do it once to them. You'll lose that customer forever.

So be dependable. It means a lot to people.

And if you do get detained or held up for some reason, be considerate enough to keep your customer informed. That may be enough to keep the customer!

CHISELING

One of the most unfair and infantile tactics in any business is chiseling the customer with "add-on" extra costs, just because the contractor bid the job too low.

That's not the customer's fault. You're the tree expert, remember?

O.K., you took the job too cheap. That's business. Accept it gracefully, coolly, and you'll probably come out O.K.

One fair way to make ends meet is to sell a little more work while you're there. A couple of $10 or $25 extra small jobs can often make the difference between a gain or loss on an underbid biggie.

If you can't do that, at least a too-cheap job could be good advertising for you over a longer range than just that day or so.

And at any cost, don't antagonize an otherwise satisfied customer by trying to chisel him for your mistake. It's not worth it.

RUDENESS

While some less-than-expert tree surgeons slide by year after year on their charm, even the most skilled arborists will have trouble keeping customers if they act offensively.

A few important things to remember is that everybody around the home or other location where you're working is worth being polite to. Even animals. (I once lost a very good customer because her dog didn't like me!)

Be patient with kids. Talk to them. If you try to chase them off rudely they will never get out of your hair. Try to explain why it's so dangerous to be close to your work site, yet treat them like adults and they'll often be just as understanding.

Tact is always better than force. If you send somebody's kid in crying because you yelled at them, you can believe the next tree job at that house will most likely not be done by you.

INCONSISTENT PRICING

Another good way to lose even your best customers when you least expect it is by playing games with your prices.

For example, say you are pruning two or three small trees for a good paying customer for about $15 each and the next door neighbor asks you to do a couple of theirs. You are already there and have your equipment on the job, so you quote the neighbor a price of $10 on his tree of the same size.

Here's how you will lose two customers! Customer #2 will boast what a great deal he got to customer #1 and customer #1 will feel cheated because he paid more.

And of course customer #2 will dislike you for having socked it to his buddy.

Consistent pricing is a business essential. That's why fine restaurants will throw their best lobster in the garbage before they would sell it for half price. You'll do a lot better to lose a few jobs here and there than to lose customers because they don't trust your prices.

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For More Details Circle (112) on Reply Card

ALLIGATORWEED ERADICATION ANALYSIS AND CONTROL *(from page 53)*

these untreated alligatorweeds. However, burning the top growth a few days after treatment reduced regrowth tremendously by destroying the nodes previously not harmed. Overall results were unbelievably successful.

Incidental to our tests we found that frost damages all foliar portions of alligatorweed except the nodes. We have applied Vapam and paraquat at temperatures ranging from 30 degrees to 90 degrees. Optimism results for us are achieved when applications are made in temperature from 65 degrees to 75 degrees.

In 1968 we perfected the use of high emulsion type weed oil as a substitute for paraquat. This resulted in even greater penetration of foliage and a substantial reduction in use cost. The rate used was one gallon weed oil, one quart Vapam, two ounces surfacant in 25 gallons water applied on 100 square feet.

The Vapam-oil spray plus burning gives control nearing 95 percent. The regrowth is retreated by spraying and in areas where penetration is difficult (steep banks and soil types) "pot holing" is employed. This is done by digging a basin, or loosening the soil around individual plants and filling with spray mixture. In some areas five pounds per acre of diuron is added to the mix to control annual weeds, making it easier to find any regrowth.

Amitrole has also been used in the summer months to weaken or stress the alligatorweed plants for winter pot hole control measures.

Our alligatorweed program in both Tulare and Los Angeles counties is now in the search and destroy phase. To prevent small unseen infestations we found it necessary to establish a clean ditch program. Consequently we have now concentrated more effort in this area. Common annual weed species are best controlled with diuron (Karmex) or simazine (Princep) at 10 pounds per acre, and in areas where feasible, bromacil (Hyvar X) at 5 pounds per acre. Where Johnsongrass is established, we have used MSMA and Dowpon C.

Probably the most difficult weed to control for us is smartweed. It grows rapidly and can completely hide any small alligatorweed in short order. Where no susceptible crops are present we use 2,4-D amine. Ammate X is substituted in areas bordered by crops.

The combination aquatic and ditch bank weed control program is paying off. Only a few widely scattered alligatorweed plants are in evidence today. Those that are found are treated with dicamba at the rate of one ounce to five gallons water. Only 30 single small plants were found this past fall in Tulare County and all of these have been treated.

It should be pointed out that other means of weed control have been utilized in addition to chemicals. When it could be done, burning of trash weeds helped remove old growth. An L.P. gas burner boom, mounted on a 4-wheel drive vehicle was a big help.

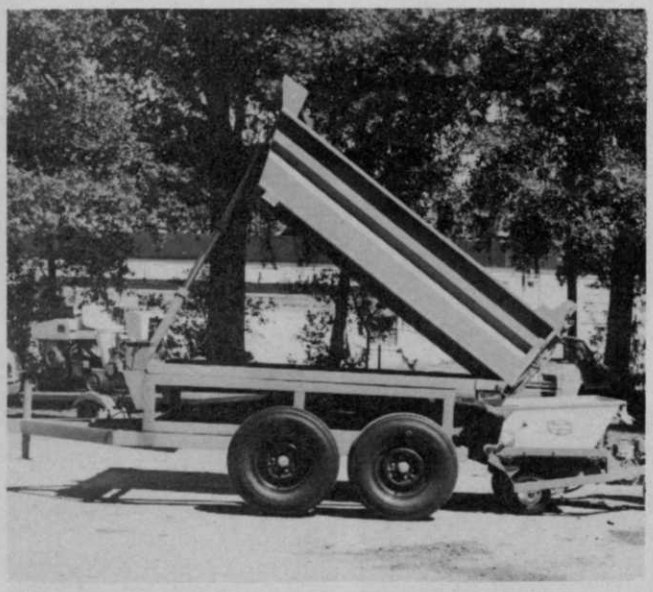
Physical removal of spot infestations with a backhoe completely eliminated the problem. Weeds and soil removed in this method were hauled to a black-topped apron where they were spread out and treated with Vapam. The entire area was treated with Vapam and refilled with clean soil.

In some waterways we completely reshaped the system, moving the infestation up to the bank where it could be spread out and treated. Removal of willows, dead trees and bamboo, plus the building of a roadway, enhanced the flood control and water movement and made alligatorweed control more successful.

In Los Angeles County, helicopters equipped with Amchem's microfoil boom have been used over much of the infested area. While application costs are high with this type equipment, we have been able to apply Silvex at rates of 2-, 4-, and 8-pounds (active ingredient) per acre with a high degree of success.

Additionally, biological control methods, in the form of the flea beetle, have been introduced on alligatorweed. Early releases failed to establish. Later the beetle successfully colonized along a half-mile of a river in Los Angeles County, but did spread far from the water. Heavy flooding in 1969 flushed out all the beetles and the project was abandoned.

Finally, the awareness of individuals to the alligatorweed problem has been most rewarding. Cooperation by land owners in doing whatever needed to be done and continued surveillance by all has made this project a success. The status of alligatorweed can now be changed from a problem to a nuisance. □

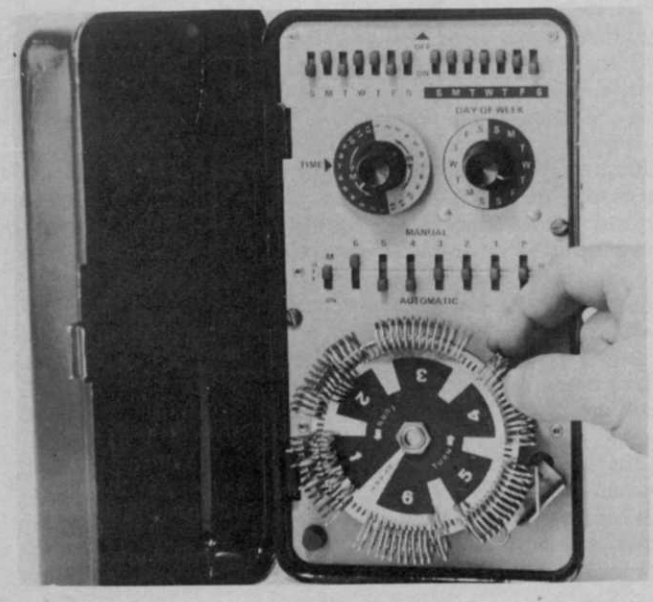


HYDRAULIC DUMP TRAILERS:
Hayden Beatty Rambler, Inc., Burlington, N.C.

Ruggedly built Beatty Hydraulic dump trailers feature reinforced bodies and frames. Designed to be pulled behind any tow vehicle — truck, tractor, or car. Both on- and off-road models. Lift capacity up to 10,000 pounds. Hydraulic system 12 volt self contained. Brakes, electric (surge available). Specially designed models include golf course dump trailer, special potting shelf nursery unit, utility dump, Lo-Boy dump and others. Designed for one-man, no hand labor. For more details, circle (701) on reader card.

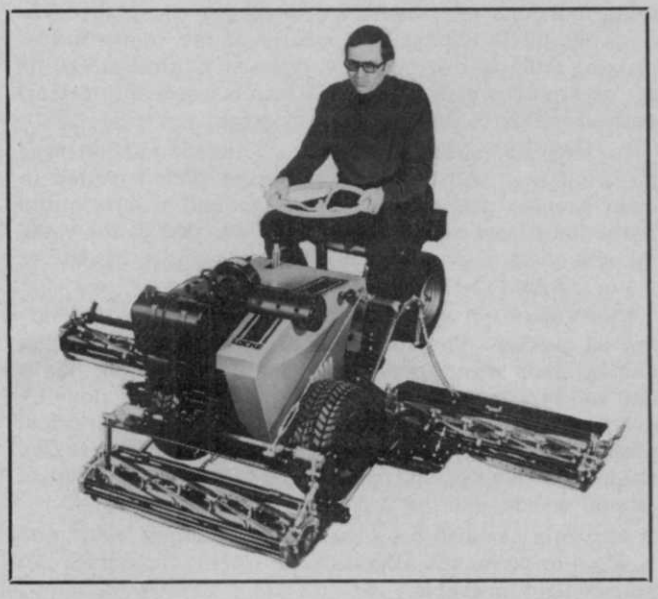
TURF & PAVEMENT SWEEPER: Turf-Vac, Long Beach, Calif.

Model FM-5 Lift Dump provides a full five-foot sweep. It can dump directly into trash bins, trucks, over retaining walls or on top of compost heaps. Hydraulic lift system raises the entire hopper, tilts it for maximum dumping efficiency and opens and closes the hopper door. No brushes, rakes or other mechanical pick-up devices are used on this unit. It's all vacuum and it works equally well on turf and pavement, wet or dry. As show, construction is heavy-duty welded steel. Height is 72 inches and width is five feet four inches. For more details, circle (702) on the reply card.



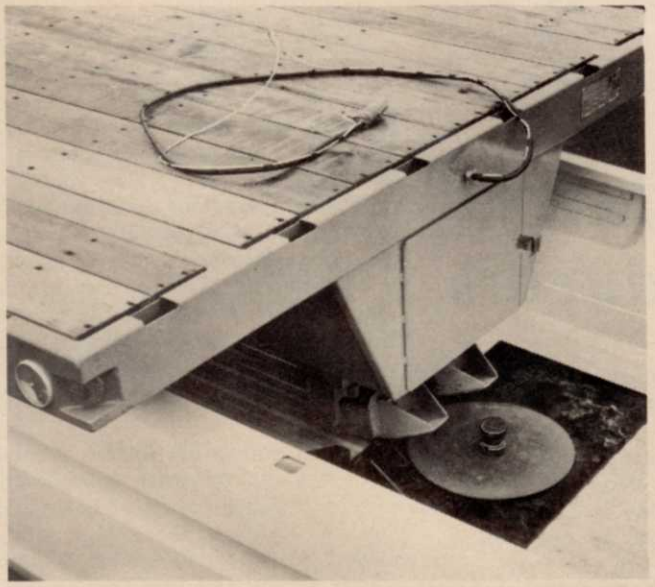
BUDGET-PRICED CONTROLLER: Tork Time Controls, Inc., Mount Vernon, N.Y.

Any underground sprinkling system can be automated with this new compact and budget-priced controller. Model 5206 can control up to six individual sprinkling sections. Tabs on a revolving wheel are tilted in to call for sprinkling. Each tab represents 2½ minutes of watering. The unit automatically interrupts and then restarts a single watering cycle in any selected zone to avoid wasting water. The unit transfers automatically from section to section to provide a total watering time of four hours. Each section can have any amount of watering time up to 32½ minutes. The controller will water as little as one day every two weeks or every day, or any combination of days. For more details, circle (703) on the reply card.



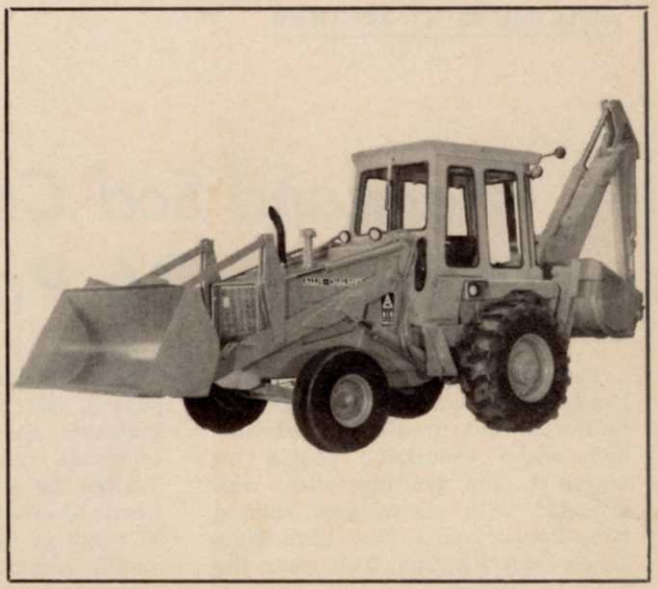
MAXI II TRIPLEX: Locke Division, Stellar Industries, Inc., Bridgeport, Conn.

Here is the new features to this riding triplex unit with 87 inches of mowing width: heavier chassis of steel weldments, stronger mounting bolts, control rods and linkages, tougher cutting reels with 20 percent thicker blades, ten hp, recoil start engine repositioned for improved performance, greater traction and climbing ability. The Maxi II offers hydrostatic traction drive for fully variable ground speed with instant reverse. Unit also has Locke's velvet-cut, a trademark known to grounds maintenance men. Cutting height is variable from ¾-inch to 2½ inches in ¼-inch increments. A close cut version is available for cuts from ¼-inch to ¾-inch. For more details, circle (704) on the reply card.



MINI-TRAILERS: Clark Equipment Company, Michigan City, Ind.

Turn your pickup truck into a tractor-trailer unit in a jiffy with a miniature fifth-wheel hitch system. A two-inch SAE kingpin that folds into the floor of the pickup when not in use does the trick. Trailers are either closed van or flatbed. The van is available in 24 foot length and features one-half inch plymetal side door on the curbside for easy access to route loads. A folding step to the 34 inch floor decreases delivery fatigue. Also standard is a roll-up type rear door. Flatbed is available in 22 and 30 foot lengths. It's ideal for small hauling jobs such as sod delivery, equipment hauling, etc. For more details, circle (705) on the reply card.

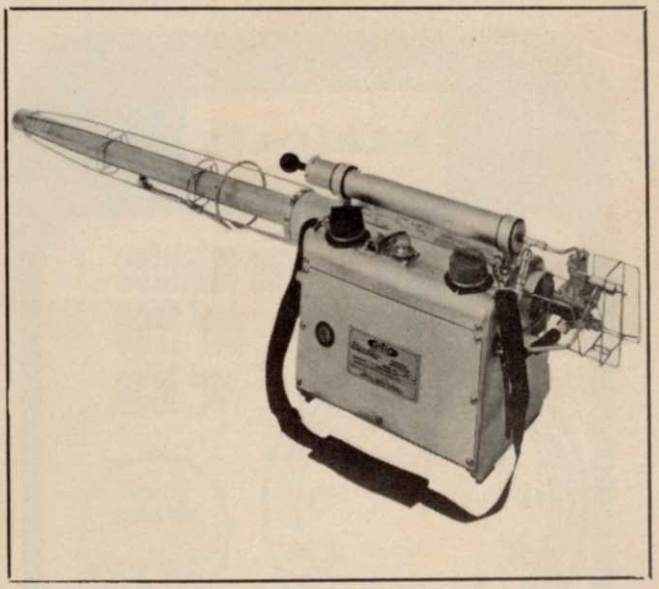


BACKHOE/LOADER: Allis-Chalmers Industrial Tractor Div., Topeka, Kans.

Model 816, Series B tractor backhoe/loader is built heavy-duty to handle the big jobs of the Green Industry. Front axle will handle an 18,000 pound load. Frame is designed to easily withstand stresses and loads incurred during the most severe operations. Tractor is powered by an 83 hp diesel engine, driving through a four-speed transmission. Backhoe has a 16 foot three-inch digging depth; 13,000 pounds digging force, 2,000 pounds lift capacity and 22 feet 10 inch reach from rear axle. Loader is self-leveling. It has a 50 degree rollback for reduced slippage, 11,000 pounds breakout force, 52 degree dump angle and 1¼ cubic yard capacity. For more details, circle (706) on the reply card.

ROTARY CUTTER: Terrain King Corporation, Houston, Texas

Greater strength with less weight is featured in this rotary cutter which features a one-piece deck. Total weight is only 650 pounds, but don't let that fool you. This cutter can handle extremely tough cutting assignments that are usually reserved for the "big boys." Standard features include round blade holder, 360 degree swivel tailwheel, 75 hp gearbox with splined shafts, rugged designed "A" frame and a slip clutch. Cutter width is 5½ feet and it is easily attached to lightweight tractors by a 3-point lift. For more details, circle (707) on the reply card.



DYNA-FOG: Curtis Dyna-Products Corporation, Westfield, Ind.

Model 70B fogger is the latest in design for efficient and economical insect control. It employs a resonant pulse jet engine's heat to vaporize insecticide formulations, which when introduced to the air condense to a fine fog. Unit operates with a completely clean exhaust and produces no carbon monoxide or other polluting hydrocarbons. Construction is of aluminum and stainless steel for corrosion resistance and ease of carrying. Total weight is only 18 pounds. Small particles of fog tend to suspend in the air and move with air currents in all directions. Fog output is rated at 0 to 7 gallons per hour, depending on adjustment. For more details, circle (708) on the reply card.

Maryland Sod Conference Attracts 126 Producers

The 8th Annual Maryland Sod Conference was attended by 126 interested sod producers, installers and allied industrial people on March 8. The meetings were well attended with participants coming from Pennsylvania, New York, New Jersey and Virginia. This year the program veered away from cultural practices and hit hard on other "dollar important" topics such as collection of accounts, turfgrass financing and sod contracts.

Carl I. Morris, Sr., Associated Claims, Inc., Silver Springs, Md. led off the conference and hit home with his discussion entitled "Collection of Accounts in the Sod Industry." Time did not permit all questions to be answered. The interesting fact that "... 70% of all people pay their bills, 20% are inclined to be a bit slow in paying, 5% are migrants, 3% are indigents and 2% are true credit criminals raised some eyebrows." Further he stated that one dollars worth of credit today is only worth 90 cents in 90 days, 50 cents in 6 months and 30 cents in one year.

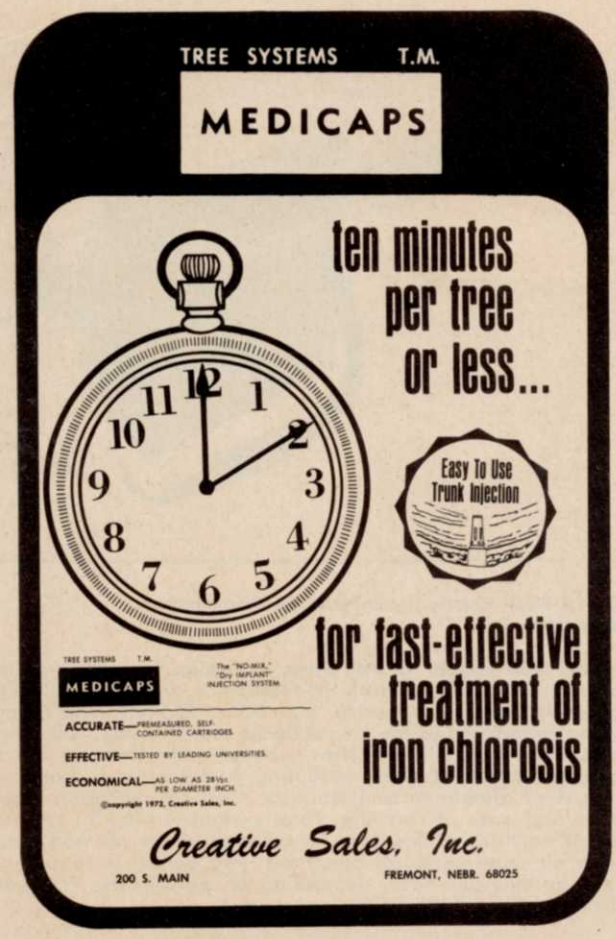
Morris warned the participants to grant credit with the idea that every single account could become a collection problem. He suggested these steps to follow: 1) Grant credit in a thorough and intelligent manner. 2) Establish and follow a written billing and collection time schedule procedure. 3) Recognize when your efforts will be more productive applied to other phases of your business. 4) Select and work with a professional collection agency to hold your credit losses to a bare minimum.

Neil Shpritz then presented an interesting talk about economic activities for which Maryland has outstanding advantages. He pointed out Maryland's prospects for growth in the coming years. Sod industry growth is dependent upon expansion in population and housing construction, and Maryland's rate of growth in these areas has been substantial. The rate of population growth in Maryland is about twice the national average and second highest east of the Mississippi, exceeded only by Florida.

Shpritz indicated forces shaping the Maryland economy include the economic impact of the Chesapeake Bay, the geographic variety of the coastal plain — Piedmont Plateau region, highly developed transportation arteries, close proximity to the Nation's capitol, good agricultural climate, soil and tradition and excellent harbor facilities.

Roie M. Godsey, Senior Vice President, Virginia National Bank, Charlottsville, Va., talked about financing a turfgrass operation and pointed out that the turfgrass business is not too different in principle from any other business to be capi-

(continued on page 60)



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MD. SOD CONFERENCE
(from page 58)

talized. There is the need to generate cash flow to repay long-term, intermediate and short-term obligations. It is necessary that the sod producer sell himself and his plan of success to the bank. Godsey challenged the sod industry of Maryland and Virginia to get busy collecting data on the importance of the industry to the economy of the state and to point out the profitability and stability of sod production and installation. He indicated that once economic impact, profitability and stability are documented, money will be more available to the industry.

Charles H. Darrah, Cornell University, presented results of his Master's thesis research on how management factors and the environment can influence sod heating. Harvesting sod early in the morning seems to be extremely important in increasing sod survival.

Reducing the amount of living tissue between layers of sod by reducing mowing height from 2 or 3 inches to 1 inch before harvesting did reduce sod heating but decreased esthetic value of the sod.

Collecting clippings reduced sod heating 2.5 degrees centigrade after 48 hours under the conditions of his experiment. Cutting depth was noted to influence sod heating with a ¾ inch cutting depth producing the lowest storage temperature and best overall survival.

The method of stacking sod was shown to influence its rate of heating with rolled sod remaining cooler than either grass to grass folded or grass to soil folded after 96 hours on the pallet. Grass to grass folded heated faster than grass to soil folded sod.

Dennis E. Brown addressed the luncheon banquet with an explanation of the amended Virginia Sod law. The important point made was that the only people needing the license are those making the final sale in Virginia.

The afternoon session began with a three member panel on "Problems in the Sod Industry from Seed to Lawn". Walter Livingstone covered sod producer problems such as rocks, erosion, collection of accounts and pricing. Franklin Delp followed with a discussion of sod installer problems. He stressed the need for stronger specifications indicating "who does what". Martin L. Rize relayed the problems of the big builder to the conference participants. He pointed out the need for "big time installers" who can handle 300 home installations in a relatively short period of time. There was a great deal of audience participation during the panel discussion which substantiated the need for this problem session.

Dr. Herbert Cole, Penn State University gave the audience a "fire and brimstone" speech on the importance of utilizing blends and mixtures in sod production. He pointed out that uniformity of species and variety invariably leads to disease and pest problems. His admonition that "A turfgrass monoculture . . . is sooner or later heading for disaster" fell upon a captive audience. Dr. Cole further said that the sod industry is obligated to provide buyers with blends as a form of consumer protection. (See "Compromising At The Sod Farm," WTT, April 1973.

James W. Coddington, Agricultural Marketing Service, USDA, presented the difficult subject of Sod Marketing Orders in a very easy to

(continued on page 62)

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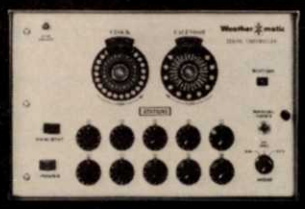

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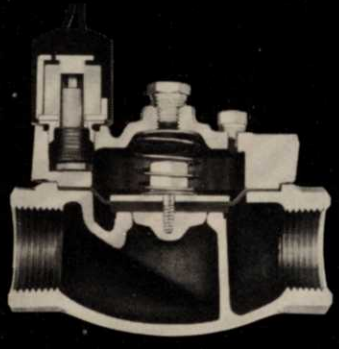

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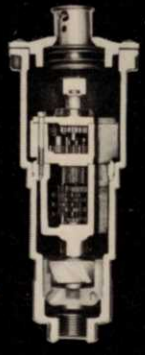

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MD. SOD CONFERENCE

(from page 60)

understand fashion. His discussion was extremely pertinent because of Michigan's recent sod market price collapse and their subsequent investigation into the possibility of stabilizing the market with sod marketing orders. Coddington said that a marketing order is a legal tool provided by the government for solving marketing problems. Its purpose is to improve returns to the growers through orderly marketing. Types of market orders would include quantity or quality regulations, market or production research, marketing statistics, regulations prohibiting unfair methods of competition and unfair trade practices or price posting by handlers to aid in stabilizing prices.

The last speaker for the conference was Kathryn D. Williams, Bowen & Diggs, Wheaton, Md. A lawyer in her own right, Ms. Williams discussed the basic elements of contracts for sale of sod and pointed out the weaknesses of oral contracts with their almost certain requirement for litigation. Her discussion of the Maryland code regulating sod sales with relationship to contracts was pertinent and raised many questions.

Rocky Mountain Sod Growers To Host ASPA Meeting

Plans for the annual summer meeting of the American Sod Producers Association have been finalized. This year's meeting is scheduled for Denver, Colorado and the host organization for the event is the Rocky Mountain Sod Growers Association. Dates for the meeting are July 16-19.

The three-day program will include educational sessions on the technical aspects of sod production, tours of sod operations at the Richlawn Turf farms, sod installation, equipment field day and the annual business meeting and banquet.

A special program is being planned for women and children.

American Sod Producers Hold Meeting In Hawaii

Sod producers traveled by charter flight from various areas of the United States mainland and Canada to Hawaii for the winter meeting of the American Sod Producers Association. About 200 attended the eight-day trip, including sod producers, suppliers, wives and children. The late-winter meeting provided an opportunity to enjoy the unlimited natural beauty of Hawaii as well as attend exceptionally well-rated educational sessions.

Kauai and Maui islands were selected as the sites for the ASPA activities. These islands exhibit unlimited natural beauty and quietness as contrasted to other areas of intensified development.

The educational sessions were planned as seminar sessions on the business rather than technical aspects of sod production. Dr. James Longstreet, chairman of the finance department, College of Business Administration of the University of South Florida, presented two one-half day seminars on the topic of financial management. His presentations were filled with a constant flow of valuable and useful information for the successful management of sod operations.

In addition, Dr. Longstreet conducted two roundtable discussions that proved to be most helpful in answering questions raised by sod producers attending the seminar sessions. Frequently, specific questions lead to lengthy discussions on certain aspects of financial management as to how it relates to sod production.

During a third seminar session,

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COMING IN JULY WTT

SPECIAL SHADE TREE ISSUE

attention was focused on the topic of "General Tax Planning For Sod Producers." Richard Thomas, relayed information on various aspects of taxes, ranging from income tax through estate planning. He is a partner in the nationally known accounting firm of Arthur Anderson of Houston, Texas.

Recognizing the need for better business management in the sod industry, ASPA purposely selected talented speakers with the capabilities exhibited by Dr. Longstreet and Mr. Thomas. Educational seminars of this nature, as well as making available the ASPA Accounting Manual, represent association activities to help sod producers become better business managers for more profitable sod production.

Wye Institute Research Studies Turfgrass Problems

The University of Maryland's agricultural experiment station, in cooperation with the Wye Institute, is conducting three separate studies in turfgrass management on Maryland's Eastern Shore.

These studies will provide useful information on growing high-quality lawns, according to Dr. John R. Hall, project leader, who is an assistant professor of agronomy at the university's College Park campus.

Over 100 types of Kentucky bluegrass are being studied in the variety trial project. Sixty-four are individual varieties and 36 are mixtures of two or more varieties.

Separate plots are being observed for quality, density, color, disease resistance, seedling vigor and persistence. Ratings are taken on the plots from April until November in order to follow their performance throughout the growing season.

The variety trial project was started in the fall of 1972 and will continue for an indefinite period. It is hoped that a variety adaptable to the Eastern Shore region will result from these tests.

The second project involves variety trials of grasses in shaded areas. There are 32 varieties being tested. These are mainly creeping red fescues, Kentucky 31 tall fescue, and Warrens A34 bluegrass and perennial ryegrass.

One of the major factors being looked at in this project is the persistence of each of the varieties. Some of the grasses on the market now last only four to five years, according to Dr. Hall. When this experiment is finished, homeowners can plant the variety recommended, knowing it will persist.

Common Bermudagrass is a nuisance invader of lawns on the Eastern Shore. The third experiment that Dr. Hall is running is aimed at eradicating common Bermudagrass from established bluegrass turf. The chemical, siduron (Tupersan), is being used in the study.

Bluegrass plots that have become infested with Bermudagarass at the Wye Institute are being used in the study. Various rates and times of application of Tupersan are being studied.

The eradication experiment was started in the spring of 1972. At present, Dr. Hall is pleased with the results of the chemical in his fall evaluation.

With experiments and studies being conducted at the Wye Institute, the Maryland agricultural experiment station hopes to improve the quality of life for the people of the Eastern Shore. These projects are only one means of accomplishing that goal.

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Stop Silver Maple Galls Spraying Is The Answer

Silver maple tree leaves covered with small red, green and black bumps are the result of maple bladder galls, says Donald L. Schuder, Purdue University extension entomologist.

Better spray now to prevent their recurrence, he advises. These abnormal growths are caused by small microscopic mites which feed on the foliage. Mite-feeding stimulates plant cells in such a manner that they form galls which serve to protect the mites.

The wart-like growths may occur singly or in clusters. They may become abundant enough to cause the foliage to appear gnarled and deformed. But even so, they seldom cause enough damage to affect the vigor of the tree, says Schuder.

Galls may be prevented by tree spraying just before bud break. Spraying at this time destroys the mites which overwinter in the cracks and crevices of the tree's bark. Spraying must be done, however, before new leaves are formed, or the mites will feed and galls develop.

plication of one quart of either mal-

The entomologist recommends apathion or lindane emulsion concentrate per 100 gallons water. Dormant sprays of a superior oil or liquid lime sulfur are also effective.

Pesticide Applicators Train For Safe Chemical Use

Tightening of regulations on pesticide use in Ohio has intensified educational training programs and licensing needs for pesticide applicators in the state. A series of six applicator's schools have been completed across the state with over 1,000 licensed applicators, operators, and other interested persons attending, says John Oren, associate state leader, agricultural industry, Ohio State University.

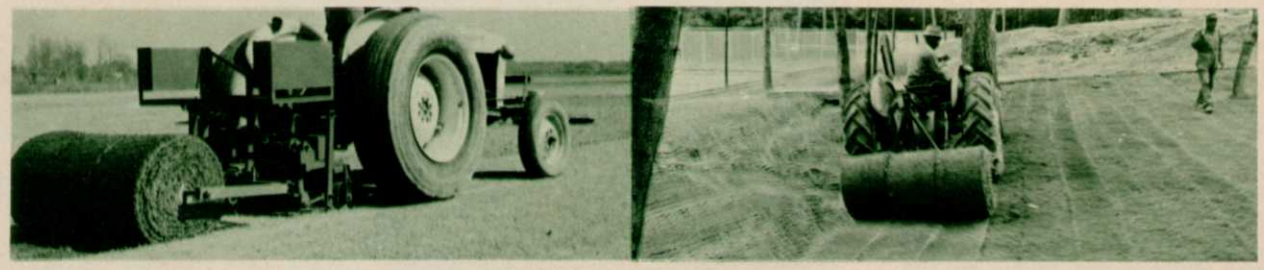
The continuing program, consisting of education, examination, and licensing, is a joint effort of the Division of Plant Industry, Ohio Department of Agriculture and the Cooperative Extension Service. Training schools annually incorporate latest changes and recommendations in chemicals and their use and revised or added federal requirements.

According to Oren Spilker, specialist in charge of pesticide regulations for the Ohio Department of Agriculture, 343 applicants took examinations at this year's meetings with the hope of becoming licensed applicators and operators.

To date, the Ohio Department of Agriculture has issued 938 applicators licenses; 933 operators licenses; 557 public operators licenses; and 575 licenses for pesticide dealers, Spilker adds. Another 2,226 users permits have been issued to users of restricted pesticide, he says.

Educational sessions cover latest recommended chemicals and their safe use in field crops, turf and ornamentals, vegetables, and industrial, aquatic and commercial vector control, according to John Oren. Schools are designed for both commercial and public operators as well as applicators of chemicals on a private use basis.

In line with the applicator schools, extension personnel have put together an Ohio Pest Control Handbook which is distributed to applicators, operators and other users of chemicals through the Ohio Department of Agriculture. The handbook includes 22 publications (updated each year) that cover previously mentioned chemical use fields.



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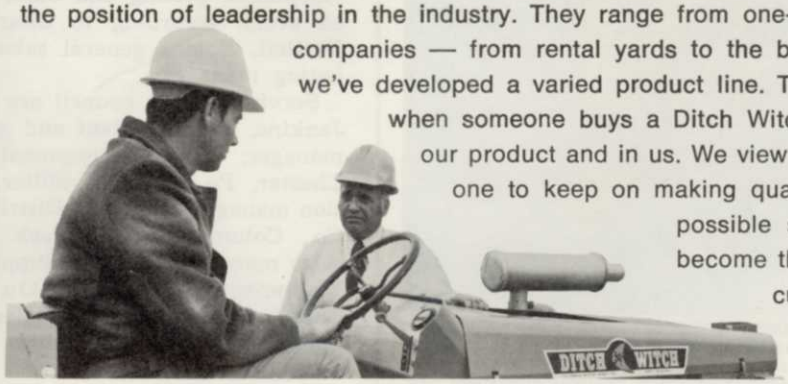

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LOUISIANA'S FIGHT

(from page 26)

mixing herbicide and chemical in a mixing tank, a metering-mixing device is located on the suction side of the pump. This measures concentrated herbicide thru a metering disc and mixes it with water drawn from overboard. The opening in the metering disc has been sized and the pump calibrated to apply a one-half percent, by weight, solution of 2,4-D amine. This is applied to water hyacinths at the rate of 2 to 4 pounds of the active ingredient per acre of vegetation.

The present status of our aquatic plant control program is as follows:

Water hyacinths have been cleared from most of the principal waterways in Louisiana. But because of reinfestation occurring from seed germination and reintroduction from inaccessible areas, retreatment two to three times each year are required.

Alligatorweed quantities have been reduced significantly during the last two years as a result of several adverse factors affecting this plant. These include: feeding damage by the alligatorweed flea beetle; a combined effect of beetle feeding and 2,4-D application; and, improved growth competition from water hyacinths.

Submersed weed problems from a number of species are increasing in many of the waters of the state as a result of increased light penetration that occurs after removal of surface vegetation. To combat this, the Corps of Engineers is funding research at the University of Southwestern Louisiana for control of *egeria densa,* and at Northwestern State University of Louisiana for a study of Cabomba.

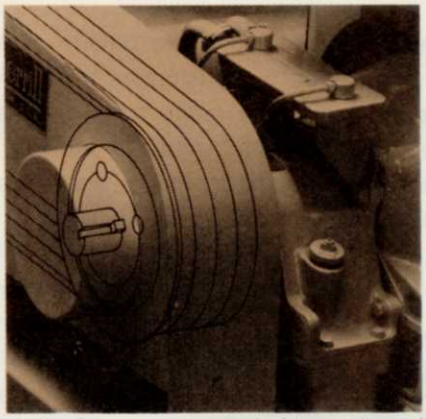
Another facet of Corps of Engineers research in Louisiana is field testing of a laser system for control of water hyacinths. In October 1972, the Corps of Engineers waterways experiment station ran preliminary testing of the laser system in a field location in southeast Louisiana to determine any operational problems connected with the field use of the laser system. In the spring and summer of 1973, additional field treatment of water hyacinths will begin and effects of these treatments on the plants will be determined. □

Mitts & Merrill Brush Chippers For...

better design... more efficiency

For more than 115 years Mitts & Merrill has been making specialized machinery for industry. A major part of our business is equipment to reduce scrap and waste. This experience is incorporated into design features on our brush chippers that result in higher efficiency and longer, trouble-free service for you. Only Mitts & Merrill brush chippers offer features like these:

Staggered knife pattern for smoother cutting action. Mounted on an all-steel cylinder that, even without an external flywheel, is heaviest in the industry. Each cylinder revolution gives more cuts, produces smaller chips of uniform size. Self-adjusting knives are reversible; give twice the service between sharpening.



Optional torque converter isolates engine and transmission from cutting shock to minimize maintenance. Makes operation virtually fully automatic; increases operator productive time. Available on all models.

Plus...

• **Positive safety-lock pin** for greater operator safety • **Swing-away, folding feed chute** protects cutting chamber; allows instant access and increases maneuverability • **Heavy duty construction** includes coil spring, torsion-type suspension, and box tubular steel frame.

mitts & merrill — A SUBSIDIARY walco WALCO NATIONAL CORPORATION

Dept. WT-78, 109 McCorskry St., Saginaw, Michigan 48601

For More Details Circle (110) on Reply Card

Distributor Advisory Board Formed By Bolens Div., FMC

A distributor advisory board which will assist in retail marketing strategy has been formed by Bolens Division of FMC Corp., Port Washington, Wis.

The distributor board, composed of eight representatives, will aid Bolens in its planning, product development, pricing and other related areas, according to Charles F. Bartlett, Bolens general sales/marketing manager.

Serving on the council are Ralph Jenkins, vice president and general manager, Stull Equipment Co., Chester, Pa.; Richard Miller, division manager, Hayward Distributing Co., Columbus, Ohio; Jack Peart, sales manager, Farmers Supply and Equipment, Brampton, Ontario, Canada; Carey Sellers, dealer sales manager, E. J. Smith & Sons, Charlotte, N.C.

Also John Mercep, sales manager, O. P. E., R. M. Wade & Co., Portland, Ore.; Tom Lesnett, vice president and general manager, Stull Company, Coraopolis, Pa.; Glenn Blackwell, vice president and general manager, Modern Distributing Co., Springfield, Mo.; and Don Fenton, sales manager, Baxley & Burton Power Equipment, South Windsor, Conn.

Get rid of unwanted green growth before it cuts into your profits.

The weed onslaught is just about universal.

An expensive headache.

For utilities, railroads, highway departments, the petroleum industry and industry in general.

But there is a way to control that costly green tide—with Tandex® herbicide.

It's a urea-carbamate compound that gives outstanding extended control over a range of weeds and grasses.

But it's more than weed control.

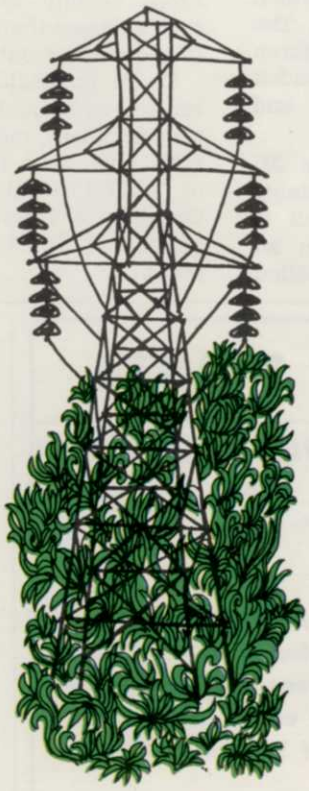
It's brush control, too. If you've got to get rid of really tough brush and woody vines, Tandex gets the job done.

You can spray Tandex or apply it in dry granular form.

Either way you use it, you'll control that costly green tide.

FOR INDUSTRY

FOR RAILROADS



FOR UTILITIES

FOR ROADS

TANDEX HERBICIDE

fmc CORPORATION

INDUSTRIAL CHEMICALS DEPT.
NIAGARA CHEMICAL DIVISION
MIDDLEPORT, NEW YORK

Tandex® is a registered trademark of FMC Corporation

For More Details Circle (140) on Reply Card

Natural Aquatic Conditions Simulated By EPA

The U. S. Environmental Protection Agency put into operation in March a unique $1 million environmental simulator that is expected to provide scientists with a significant new tool for studying the movement, fate and impact of pollution on rivers.

Known as "AEcoS," which is short for Aquatic Ecosystem Simulator, the facility will bridge the gap between laboratory experiments and uncontrolled field studies.

AEcoS is the result of 10 years of research, design, and construction by the National Pollutants Fate Research Program at EPA's Southeast Environmental Research Laboratory (SERL) in Athens, Georgia, which will operate the new facility. The simulator will be dedicated March 7 at Athens, in ceremonies attended by congressmen, EPA, State and local officials.

The concept of Dr. Walter M. Sanders, who heads the pollutants fate research at SERL, AEcoS is a channel of water housed in an environmental chamber controlled and monitored by a computer system. Computerization will permit researchers to maintain precise controls over light quality and intensity, air and water temperature, humidity, and water quality.

Cutrine Granular Algaecide Registered By EPA

Applied Biochemists, Inc., has been granted registration by the Environmental Protection Agency for Cutrine Granular, a copper complex algaecide, to control chara, nitella and other forms of bottom-growing algae.

The product is simply a granular form of Cutrine which is registered for use in potable water reservoirs; fish, fire and farm ponds; lakes and fish hatcheries. Cutrine Granular drops rapidly to the bottom and then releases the copper ions directly around and onto the algae.

Chara particularly is difficult to control with liquid algaecides. It is a hardy plant, most often encrusted with lime, thus the common name of "stonewart." By applying Cutrine Granular, the active ingredient can be put in direct contact with the plant.

Cutrine Granular is applied at the rate of 100 pounds per surface acre of water to be treated, and can be dispersed by using a dry spreader or by hand. The material will also be effective against filamentous algae at the time the plant is developing at the water bottom.

New Distributor Added By Kohler Co.

Kohler Co. has appointed one new engine central distributor and has assigned additional area to a second distributor.

The new engine distributor is Charlie C. Jones, Inc., Battery & Electric Company, Phoenix, Arizona, who will be responsible for Kohler engine sales and service throughout Arizona. Cecil Mentzer is president of the firm.

Spencer Engine & Magneto, Inc., Tampa, Florida, which has been serving all of northern Florida except the western tip, has been assigned southern Florida as an additional responsibility. Fred E. Spencer is chairman of the board and president.

SIGNS AND STAKES

High impact plastic STAKES AND SIGNS designed to direct golf carts and golfers away from wet, worn, seeded or sodded areas. Design provides wedge type rope notch for economical installation and removal. Choice of 14 sign inscriptions fit over any stake.

12" stakes	$30.00 per hundred
14" stakes	$34.00 per hundred
Signs	$40.00 per hundred
(Choice of any mix of inscriptions)	
Rope	$25.00 per thousand ft.
(3/16" polypropylene—yellow)	
Minimum order	$50.00

Write for **FREE** samples

COURSIGNS, INC.

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CHICAGO, ILLINOIS 60626
(312) 465-6330

HI-RANGER® for MORE JOBS

Model 4E-35PI Hi-Ranger speeds operators to many overhead jobs . . . lighting and signal maintenance, power lines, road and street signs, painting and repairs . . . quickly and more productively. Available as truck, track vehicle, or lift-truck mounted. Exceeds utility requirements, to 69 KV.

- Exclusive one-hand 3D control
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- 8'10½" max. insulation gap
- Many mounting options
- Fast operating
- 8'6" stowed height (on truck pictured)

SAFER . . .

HI-RANGER Aerial Towers meet the "American National Standard for Vehicle-Mounted Elevating and Rotating Work Platforms ANSI A92.2-1969," as required by the Williams-Steiger Occupational Safety and Health Act of 1970; Part 1910, Occupational Safety and Health Standards; Section 1910.67.

Write for "4E Data"

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MOBILE AERIAL TOWERS, INC.

MOBILE AERIAL TOWERS, INC. • Dept. N • 2314 BOWSER AVE. • FORT WAYNE, IND. 46803

For More Details Circle (135) on Reply Card

For More Details Circle (130) on Reply Card

MERTECT® 140-F. Tough on disease. Easy on you.

You can easily control the major turf diseases with nonmercurial MERTECT 140-F. It works systemically against dollar spot, brown patch, and *Fusarium* patch.

But along with that, it also saves you time and money.

Measuring, mixing, and dispersion are easier because MERTECT 140-F is flowable. It won't clog spray nozzles even in low-volume fairway spraying. Its long residual (2-3 weeks) control means fewer applications. And the low dosage rate makes it economical.

Follow the simple instructions on the label. MERTECT 140-F is not phytotoxic to grasses when used as directed. See your Merck distributor for a supply now. Or write us for his name.

Agricultural Products,
Merck Chemical Division,
Rahway, N.J. 07065.

MERCK

Measure out the recommended amount of MERTECT 140-F (1-2 fl oz in 5-10 gal of water/ 1,000 sq ft). Notice the handy pouring spout included with each gallon.

Pour the measured amount directly into the spray tank. No need for a slurry, no hard-to-handle powder to mess with.

Just spray on the effective disease control of MERTECT 140-F. MERTECT 140-F requires minimum agitation and does not clog spray nozzles even in low-volume fairway spraying.

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MERTECT (thiabendazole) is a registered trademark of Merck & Co., Inc.

INTERSTATER®!

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MONEY MACHINE
BY
MOTT

ONE TRACTOR
ONE OPERATOR
THREE MOWERS
SAVES TIME
TIME IS MONEY

MOWERS ARE
HAMMER KNIFE®
SAFETY FLAILS
SAFETY IS MONEY

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MOTT® HAMMER KNIFE® FLAILS
MOW LAWNS • SHRED WEEDS
MULCH LEAVES • RENOVATE
IN AREAS CLEAN OR TRASHY
IN CONDITIONS DRY OR WET
YEAR AFTER YEAR AFTER YEAR
(WOULD YOU BELIEVE UP TO 10-20 YEARS?)
THEY PRODUCE
PRODUCTIVITY IS MONEY

MOWERS YOU NEED
MOWERS WE'VE GOT
FROM 24" WALK BEHINDS
TO 19 FOOT GANGS

COMMUNICATE — WE'LL DEMONSTRATE
YOUR COST? JUST A LITTLE OF YOUR TIME.

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514 SHAWMUT AVE., LA GRANGE, ILL. 60525

INTERSTATER
MOWING RANGE
45° DOWN TO 57° UP
TRANSPORT 90° UP

mott®
HAMMER KNIFE®

Work crews from the Lower Tule Irrigation District remove alligatorweed with a backhoe. Mats of the weed become so thick that water cannot flow along the ditches.

ALLIGATORWEED ERADICATION PROBLEM IDENTIFICATION *(from page 52)*

ment whereby funds from three areas are used to subsidize our eradication program. The state-county agreement provides $7,000; the Los Angeles County Flood Control has budgeted over $50,000; and, the U.S. Army Corps of Engineers District has been asked for $13,000 and is cooperating in the control efforts.

Our program objectives are: 1. to remove the foliar mats of alligatorweed by use of foliar sprays or by hand. Each node in the stem is a reproductive part which can infest or re-infest if care is not taken in normal removal procedures. 2. to kill the perennial root structure of the plants.

Through these objectives we have been able to appreciably diminish the original 40 acres of alligatorweed mat. This has been aided somewhat by the removal of 800,000 tons of soil under quarantine restrictions that have accumulated over several years of silt deposit. Though large quantities of alligatorweed roots remain in the area, the working agencies have prevented reestablishment of the previous mat. They have also attempted to maintain general vegetation control in an effort to chip away at the rootstock of alligatorweed.

It should be pointed out that general vegetation control in the entire infested area is a constant battle. Ample sub-surface water or occasional inundations bring forth a variety of brush species and broadleaf and grassy annuals and perennials. Yet it is needed in order to more quickly identify and control alligatorweed.

As the downstream reinfestation potential is reduced by our eradication efforts behind the dam, we expect to begin eradicative work on the infestations in the spreading grounds. Then too, we will pay closer attention to alligatorweed growing in the cracks of the concrete river bottom.

Our program will lead to success. This is evidenced by the excellent eradication program in Tulare county. Perhaps of more importance is the awareness we've created of a specific weed problem and the potential threat it harbors to agriculture and recreational fresh waters in California. Agencies, departments, individual citizens and others have expressed genuine concern and cooperated in making the eradication program for this tri-county area work.

We recognize that as we make progress the workload becomes bigger. Spraying big mats is easy. Finding isolated surviving plants, hidden in a jungle of other vegetation requires hours of intensive search by dedicated men. It is this dedication that is the foundations for a successful alligatorweed eradication program. □

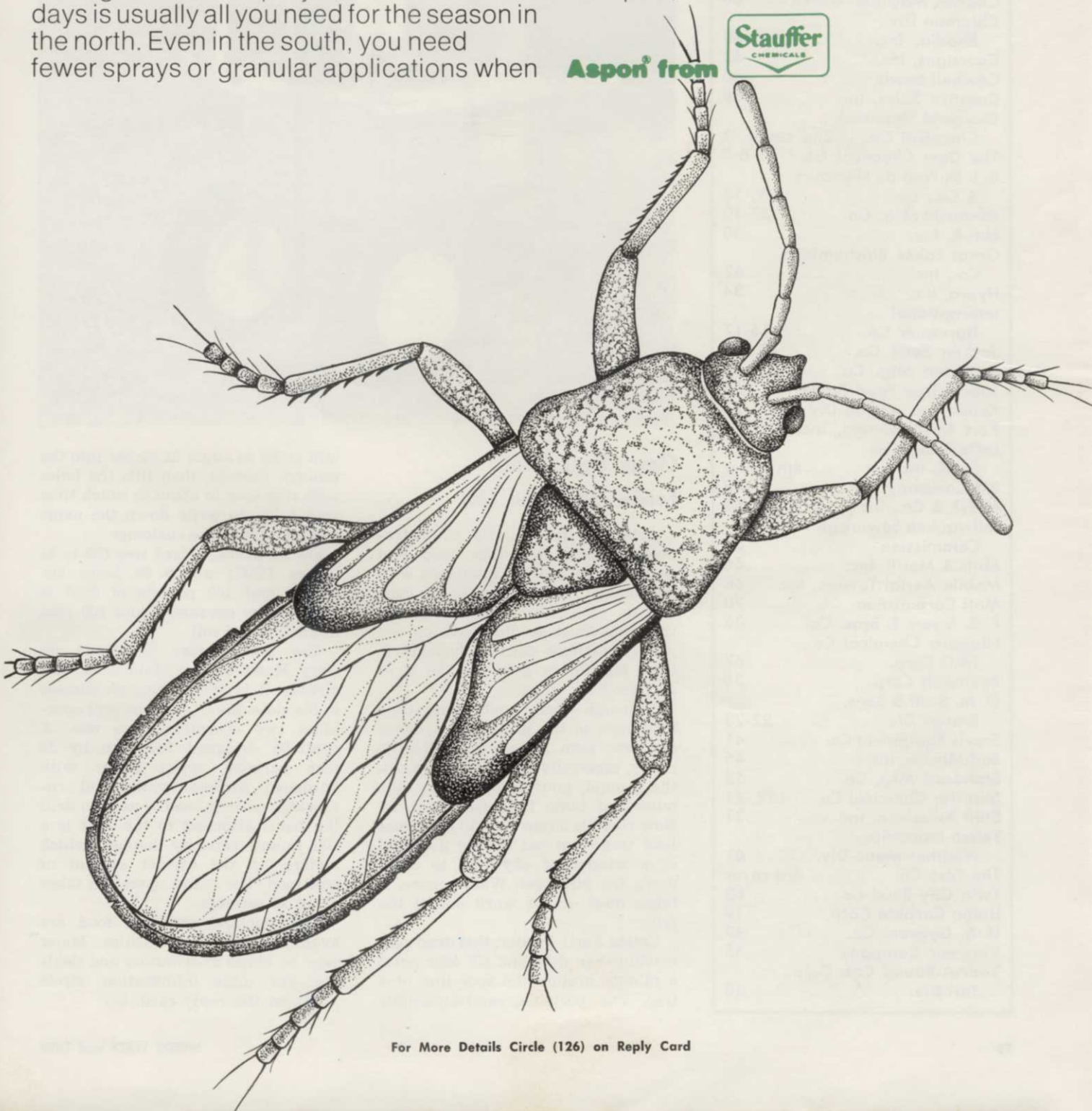
Aspon® Insecticide: never gives a sucker an even break

As chinch bugs invade more turf areas each year, the popularity of Aspon insecticide is growing. Yes, Aspon provides chinch bug control for sure with the least work and worry at low cost. Here's why.

Within 48 hours of application, Aspon knocks out 95 per cent or more of the chinch bugs, even if they are resistant to some insecticides. It puts a quick stop to turf damage. And one spray that lasts 60 to 90 days is usually all you need for the season in the north. Even in the south, you need fewer sprays or granular applications when you use Aspon. There's no chemical damage to the many varieties of turfgrass, and no carryover residue to affect the environment.

Before continued warm weather brings heavy chinch bug attacks, see your local turf products supplier for Aspon. Stauffer Chemical Company, Agricultural Chemical Division, Dept. HD, Westport, CT 06880.

Aspon® from Stauffer CHEMICALS



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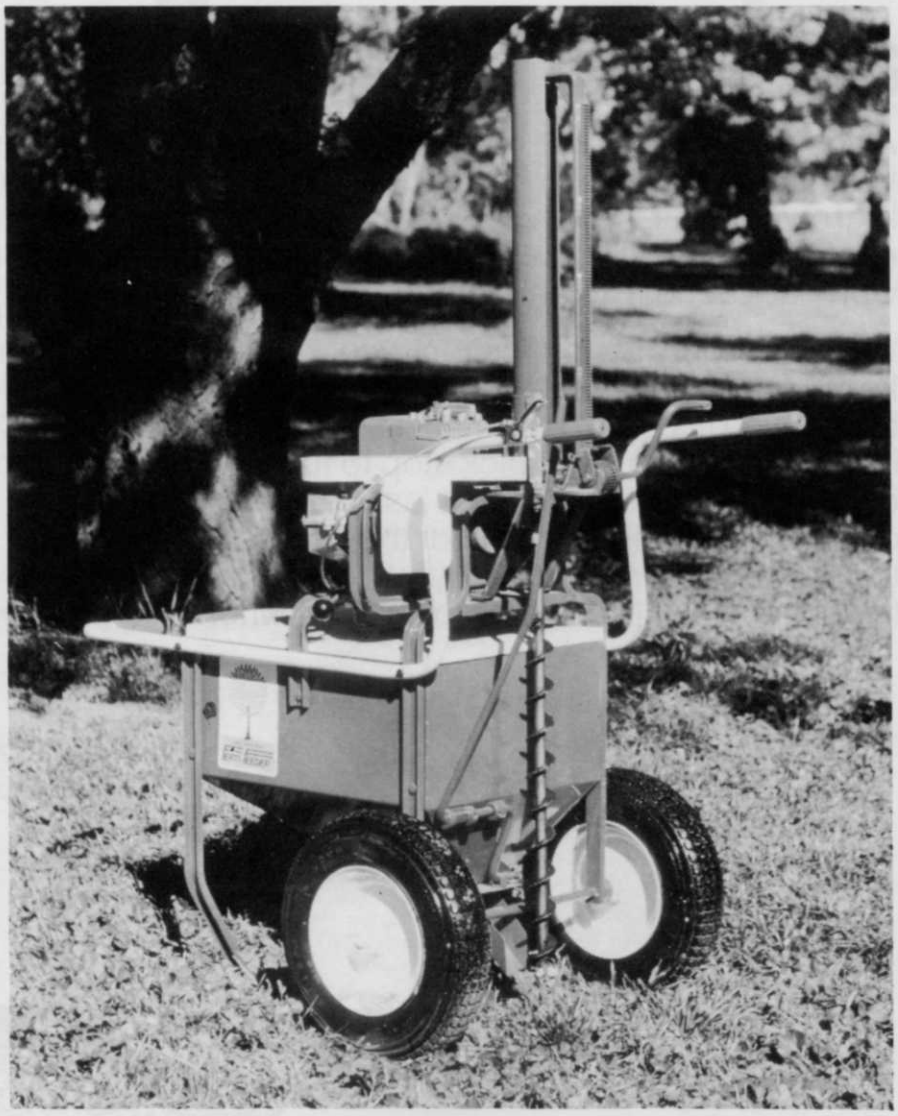


Clever Deep Root Feeder Drills and Fills

Arborists, particularly in metropolitan areas, find that deep root tree feeding pays big dividends with customers. Tree feeding has a contagious effect, too. Just about the time you finish feeding trees on one job, a neighbor calls to have their trees fed. So its good for the trees and good for business.

Although there isn't much time consumed in the job, every arborist and tree man knows that labor is costly, especially when drill holes in the ground, pour fertilizer into the holes and tamp the earth back in. Now there is a new way to deep root feed trees that has all the potential of a winner of anything to come down the pike, yet. What's more, it takes most of the work out of the job.

Called Ferti-Feeder, this deep root machine can drill and fill four holes a minute around the root line of a tree. The portable, semi-automatic unit sinks an auger 22 inches into the ground, retracts, then fills the holes with tree food in about as much time as it takes to write down the name and address of the customer.

For an average sized tree (20 to 24 inches DBH) about 60 holes are drilled and 100 pounds of feed is used. Auger operates about 600 rpm in all types of soil.

The system was developed by Gary Maier of Des Moines, Ia. and already it is been a proven success in his state. Maier says the unit combines two operations into one. A specially designed 1¾ inch by 22 inch carbide tipped auger with hardened surface spirals and removable cutting head is used to drill the hole. Attached to the unit is a 100 pound capacity hopper which meters out the correct amount of tree food. The entire operation takes about 15 seconds.

The machine and tree food are available through franchise. Maier says he needs distributors and dealers. For more information, circle (720) on the reply card. □

— classifieds —

When answering ads where box number only is given, please address as follows: Box number, c/o Weeds Trees and Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

Rates: "Position Wanted" 10¢ per word, minimum $3.00. All other classifications 20¢ per word, minimum $4.00. All classified ads must be received by Publisher the 10th of the month preceding publication date and be accompanied by cash or money order covering full payment. Boldface rule box: $25.00 per column inch.

HELP WANTED

COMMERCIAL TREE and Landscape Professionals, the growth potential is here! We need your experienced help—now! Needed: Tree Dispatch Superintendent—Central N.Y., with 5 years experience. Needed: Tree Sales Representative — Central N.Y., with 1 or more years experience. Needed: Tree Sales Representative — Western N.Y., with 5 yars experience and management ability or experience. Write: K. A. Knox, Monroe Tree & Landscape, Inc., 225 Ballantyne Road, Rochester, New York 14623. Salary—best in the business, if you qualify. Company car furnished — full time. Unique Commission Plan — in addition to salary. Paid Hospitalization and Pension. We will help you re-locate. We need your talents in our growth plans. Write today!

DISTRIBUTORS for D. J. Andrews, Inc. stump cutter teeth, pockets and bolts. Best wholesale and retail price in U.S.A. Add to this exclusive area, local advertising at our expense, etc., and you have our story. D. J. Andrews, Inc., 17 Silver St., Rochester, N.Y. 14611. Call 716 235-1230, or 716 436-1515.

BUSINESS OPPORTUNITIES

FOR SALE — Tree Service Business and equipment: 1—52 ft. Hi-Ranger on 1970 C-700 Ford Chassis. 1—Model 100-B Pittman crane on F-750 Ford chassis — 57 ft. reach. 1—1971 Ford chassis and chip box. 1—M8 1969 Mitts and Merrill chipper. 1 — 1970 Model 10 Vermeer stump chipper. 1—1967 1 ton Chevrolet truck with stake bed and hoist. Plus miscellaneous chain saws and climbing equipment. Over 15 years in business. Call 832-8118. Lincoln E. Milhoan, D.B.A. Milhoan Tree Service, 462 9th St., SW, Massillon, Ohio 44646.

New Pamphlet Released By Velsicol

"No Weed Seed . . . **Just Grass Seed"** is the new pamphlet available on use of Banvel® herbicide for establishment of perennial grasses grown for seed or for established grasses grown for seed, and for merion bluegrass and other special turf and pasture grasses.

For a copy of the pamphlet, write: Velsicol Chemical Corporation, Public Relations Department, 341 East Ohio Street, Chicago, Illinois 60611.

"POSITION AVAILABLE"

The Winnebago County Forest Preserve District will accept applications for the position of Superintendent. Must be responsible for the administration, supervision and planning of the activities in properties of the Forest Preserve District. All applications must be received by May 15, 1973 at the **Forest Preserve District Office, Courthouse Building, Room 715, Rockford, Illinois, 61101. Attention Robert B. Millard.**

POSITIONS WANTED

GROUNDS SUPERINTENDENT or Horticulturist position wanted. M.S. in Ornamental Horticulture plus over 6 years of experience including: planning and supervising a wide variety of landscaping and grounds maintenance projects as well as preparing budgets, purchasing supplies and equipment, and teaching. Resume sent on request. Box 100, Weeds Trees & Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

EDUCATION-BOOKS

LEARN AUTOMATIC IRRIGATION —Complete self-taught course and textbook on fundamentals. Design, operation, maintenance, installation, pipe, equipment. Latest developments in automatic turf and landscape irrigation. New Edition now only $49.50 postpaid. California add tax. Send check, order or request for free outline. Larson Company, P.O. Box 4453, Santa Barbara, Calif. 93103.

SEEDS

CROWNVETCH SEED: Penngift and Chemung varieties. Direct all inquiries to: Walter C. Mehlenbacher, Castile, New York 14427. Phone 716 493-2553.

SOD QUALITY MERION SEED for discriminating growers. Also Fylking, Delta, Park, Newport, Nugget and Pennstar bluegrasses as well as fine fescues. We will custom mix to your specifications. Michigan State Seed Company, Grand Ledge, Michigan 48837. Phone 517 627-2164.

MISCELLANEOUS

TREE APPRAISALS, SURVEYS, loss evaluations and expert consultation services. For names of members of the American Society of Consulting Arborists, Inc., throughout the country, contact: Executive Director ASCA, 12 Lakeview Ave., Milltown, New Jersey 08850.

FOR SALE

DOUBLE EDGE sod cutter blades. Will fit any Ryan sod cutter. Works like double edge razor blade. Cuts much more sod per blade. Made to bolt on both ways. $24.00 plus postage. New automatic sod loaders for direct loading to pallets, trucks or trailers. No workers needed on ground. Both products developed and designed by Hadfield. Write or call Glen Hadfield, 4643 Sherwood, Oxford, Michigan 48051. Phone 313 628-2000.

SOD HARVESTOR—"Big J" Harvesturf, owner is desirous of selling patents, one machine on hand, and manufacturing equipment. Minimum investment for a proven machine which has a tremendous market potential. Write Don Morrill, 501 Cindy Lane, Ankeny, Iowa 50021 or phone: 515 964-1292.

PROFITABLE TREE BUSINESS. western Pennsylvania, excellent large clientele. All forms tree care (30 acre nursery optional); also buildings, 2 homes if wanted. Equipment included. Owner assistance if necessary. Reply Box No. 101, Weeds Trees & Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

ALL TYPES Landscape Stone-Boulders, Rough Flagging, pebbles, building stone, etc. (White and all colors.) Please contact us for estimate. Valley Forge Stone Co., RD3, Box 115, Fleetwood, Pa. 19522. Phone 215 944-7171, 215 779-7698 evenings.

ARPS stump cutter teeth, top quality and best price in U.S.A., D. J. Andrews, Inc., 17 Silver St., Rochester, New York 14611. Call 716 235-1230.

USED EQUIPMENT

4 CYLINDER Diesel Woodchuck 16" brush chipper, $4785.00; V-8 gas Woodchuck 16" brush chipper (new demo.) model blower and hour meter, $4679.00; John Bean 10-10E 200 gallon sprayer hose reel $1250.00; John Bean 35 GPM 600 gallon sprayer hose reel, $3500.00. Ohio Chipper and Equipment Co., Mentor, Ohio 44060. Phone 216 255-5144.

RECONDITIONED brush chippers, sprayers, log splitters, stump routers, bucket trucks. Let us know your needs. Equipment Sales Company, 5620 Old Sunrise Highway, Massapequa, New York 11758. Phone 516 799-7619.

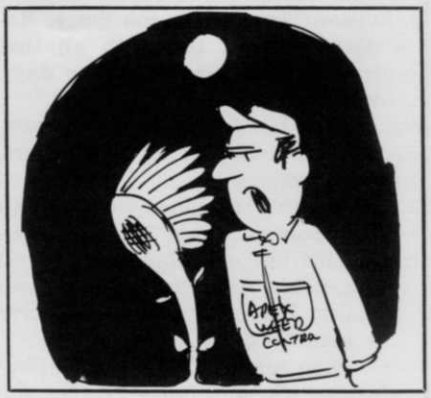
FOR SALE: 7 Gange Roseman $950- $1100. 13 gange $2300. Separate mowers $150 each. 18" Ryan sod cutter. Land for rent for sod or veg. production. Wanted to hire working Sod foreman. Phone 414 326-5267.

1971 CHEVROLET with 1044A Skyworker 60' A-1 condition, $12,000.00. Speer Tree Service, 301 Maple Hts., Bath, New York 14810. Phone 607 776-3883.

USED JOHN BEAN Rotomist sprayer, Model #100E, Serial #76605, trailer mounted and ready to go. Conrad's Irrigation, Inc., Box 526, Gaylord, Kansas 67638.

STONE PIX Stonepicker used on one golf course. Price $1,000.00. Write or call Robert Marteeny, RD3, Somerset, Pa. 15501. Phone 814 445-4232.

VERMEER T-44 tree spade mounted on 1968 Dodge one ton truck, one year old, like new condition — $5000.00. Call 914 895-3595.



Will you kindly die, I haven got all night!"

trimmings

BASIC VALUE OF TREES has now been increased by one dollar per square inch of trunk cross-section. That's the word from the International Shade Tree Conference, Inc. whose executive committee adopted the higher value in January. New figure is now $10 per square inch of trunk cross-section.

AN AQUATIC PLANT COUNCIL has been created in the State of Florida. Representatives from various state agencies and institutions make up the council. The purpose is to offer advice on the issuance of permits for the importation, transportation and cultivation of non-native aquatic plants into or within the waters of the state. The council will work closely with a with a newly established Aquatic Vegetation Laboratory. This lab will conduct biological impact investigations to determine the need of new aquatic plant species.

OZONE INJURY is becoming an increasingly important problem. It's affect on vegetation has severely curtailed plantings in many areas. Plants react differently to ozone and resistance within plants varies. Here's how you can tell if injury is due to ozone: Look for small dark spots on the supper surface of leaves between the leaf veins. Also look for small bleached areas between the veins on the upper leaf surface. In turfgrasses and evergreens, ozone injury creates a yellowish mottled appearance on the needles and blades. Severe ozone damage results in dead tissue that extends from the upper to the lower leaf surfaces. Damage usually is found at the base of older leaves and at the tips of younger leaves.

TURF SEED PRODUCTION in Oregon for last year fell below 1971 production figures in several areas, according to Stephen C. Marks, economist at Oregon State University. Bluegrass seed production was down, but better than in 1970. Chewings and red fescue seed output dropped 12 percent and 18 percent respectively. Bentgrass seed was at 90 percent of the 1971 crop.

Marks says that ryegrass seed was down about 10 percent to 237,900,000 pounds. Average yield per acre was down to 1300 pounds. Acreage was up about five percent, however, with 183,000 acres harvested.

The Silent Majority

With the interest in noise control growing louder and louder in the Congressional chambers on Capitol Hill we thought it interesting to silently probe into the situation. Because the Occupational Safety and Health Act and the Federal Noise Control Act have made provisions for noise control, it is important that every citizen be aware of what's expected of him in bringing an honorable peace to the country.

Here's what we found going on at the recent meeting of the American Society for the Prevention of Noise.

What seems to be the greatest problem in making the United States a more quiet place, we asked Joe Softpaws, president of the society. "Shhhhhh. You're making too much noise," he whispered. "We have to find ways to get our message across to the American citizen that noise is bad. So far we've ruled out television because it's too noisy. Radio isn't bad, but with all that hard rock on the air these days, it's an almost hopeless case."

What about print media—newspapers, magazines, newsletters, we whispered.

"There's nothing wrong with newspapers," said Joe scratching his left ear, "but think of all the noise those printing presses make. Why it's enough to drive a man to drink."

Then communications is out because it's too noisy. Have you considered standing on a stump like Abraham Lincoln did and deliver quiet oratory?

"Let's be reasonable," quipped Joe. "About the only way we can communicate under the present no noise laws is to show a good example by being quiet."

Then the silent majority is actually communicating by saying nothing, we said. Vice-president Agnew was wrong about the great mass of American voters. They are actually speaking their mind by not speaking at all.

"That's right, and we need even more of them to commit themselves to our effort. You see once we stop talking we start communicating," Joe said as he rolled a cigarette.

Let's get on to some of the other issues. We understand that arborists are now using beavers for tree pruning because chain saws make too much noise.

Joe nodded his head and pointed to an arborist in the crowd. "There's a man who used to own three chain saws and a chipper. Now he's using beavers. When one beaver wears out he retires it to his beaver farm and grabs another. He's not making much money in the tree business any more, but his beaver pelts are selling like hotcakes."

On the other side of the room stood a golf superintendent with a long beard. "See that man," he cried. "When he stopped mowing turfgrass he also quit shaving. Too much noise—on the course and in the bathroom. Instead he's employed a local shepherd and a flock of sheep to keep the grass trimmed. Don't do a bad job, either. I played the course the other day. Only hit three woolies and one brown goat."

Is the objective of this august organization to eliminate all noise, we asked.

"If you'd just be quiet long enough for our executive director to make his presentation you'd know the answer to that question," Joe screeched.

Sure enough, executive director Tightlips Smith was standing on the platform before the delegates. Suddenly to our surprise we heard a sound coming from nowhere.

"Ladies and gentlemen," Tightlips said without moving his lips, "it gives me great pleasure to address you today. We have reached a new high in communications. It's called ventriloquism. You hear sound without seeing my lips moving. I think it is a revolutionary idea, one which should keep the FBI and the Federal government guessing who violates the Noise Control Law for some time."

Sadly we shook our head. If this is where we are heading, then let's get home to practice quickly. We want to be the first one who can snafu the government. After all wasn't it Teddy Roosevelt who said, "Walk quietly and carry a big stick."

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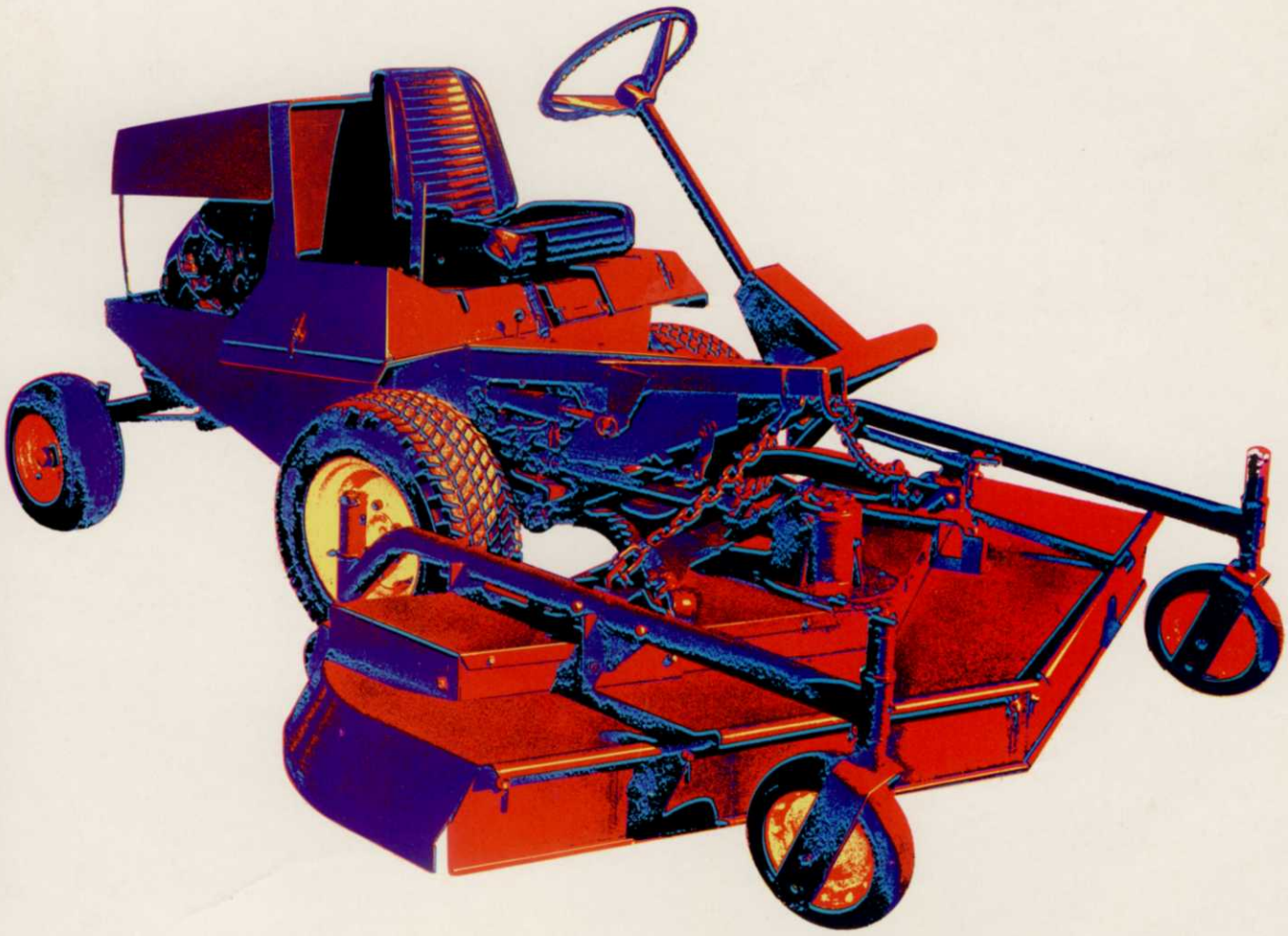

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